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A robust secondary market has emerged over the past 20 years in the debt of Chapter 11 firms. Critics worry that the trading associated with this market has undermined bankruptcy governance by forcing managers to negotiate with shifting groups of activist investors in the Chapter 11 bargaining process. This article investigates whether this is a common problem and concludes that it is not. Although trading of bond debt is pervasive, the activist groups that tend to participate in negotiations usually enter cases early and rarely change significantly. Trading in general, therefore, does not appear to have the impact on governance that many claims trading critics fear, at least insofar as the average case is concerned.

I. Introduction

For at least 20 years, bankruptcy claims trading has been the subject of controversy among bankruptcy lawyers and scholars (e.g., Tung 1996; Roe 2016).[1] The Bankruptcy Act of 1978 created a structured bargaining process, where creditors and shareholders of distressed firms could negotiate with management and one another to solve the firm's financial troubles. However, in the late 20th century, a secondary market emerged in the claims of bankrupt firms, allowing a firm's creditors to forego negotiation and instead sell their claims to new investors who will engage in the negotiation process (Baird 2010). Levitin (2010:68) calls this the "single most important development in the bankruptcy world since the Bankruptcy Code's enactment in 1978." The rise of claims trading is controversial because many commentators believe that trading has made Chapter 11 harder to administer, as managers find themselves in unnavigable negotiations with a revolving cast of investors. In 2014, the American Bankruptcy Institute debated bankruptcy claims

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[1]As noted by the *Wall Street Journal* (Feb. 16, 2016), "as the secondary market has grown, so have questions about the practice."

trading with an eye toward creating new regulations. Unfortunately, after first recognizing the importance of claims trading, the ABI's panel of leading practitioners was unable to reach a consensus as to what, if anything, should be changed in light of "conflicting anecdotal evidence" (Harner 2014:245).

In this article, I fill an important gap in the literature and provide the first comprehensive empirical study of trading in the financial claims of Chapter 11 debtors. Although the policy debate in this area among academics (e.g., Roe 2016; Casey 2016) and lawyers (e.g., Hammer & Brandess 2010; Miller 2009) is well-established, the debate has lacked the empirical foundation needed to bring claims trading into focus for both scholars and practitioners. As described in greater detail below, the results show that claims trading is an important feature of the overwhelming majority of large bankruptcy cases. Nonetheless, while data limitations warrant caution in interpreting the findings, the results suggest that the fears of critics are overstated.

The controversy over bankruptcy claims trading can be summarized as follows. One group of scholars and lawyers (e.g., Rosen 2016; Baird & Rasmussen 2010; Tung 1996; Janger 2009) worry that claims trading destabilizes the bankruptcy negotiating process. Bankruptcy law contemplates protracted, difficult negotiations over how a firm should be reorganized. The entrance of a new creditor into the bargaining space can have the effect of restarting negotiations, which may increase creditor conflict and litigation. At its heart, this is a worry about the entrance of activist investors who aim to influence the bankruptcy case. These critics urge Congress to increase the level of disclosure claims traders must provide to the bankruptcy court (Harner 2014). On the other hand, proponents of claims trading argue that claims trading makes bargaining more efficient by consolidating smaller claims into the hands of larger holders and permitting activist investors to enter the firm's capital structure (Ivashina et al. 2016). Claims trading proponents worry that increased transparency and disclosure might chill the market for distressed debt, reducing the benefits of claims trading.

It is important to qualify the limitations of the data used in this article. This study principally emerges from a hand-collected sample of trading in 506 bonds issued by 204 large firms that filed for bankruptcy between 2002 and 2012. To the best of my knowledge, this sample represents a complete record of traded bonds claims during the sample period obtainable from conventional data sources.[2] This article relies on bond trading information from the TRACE dataset, which provides the aggregate volume of trading and the trading price on each calendar day. I do not, however, observe the identity of traders. To address this limitation, I closely study the litigation of the activist investors who are said to disrupt bankruptcy bargaining to look for evidence connecting claims trading with the entrance of new bargaining counterparties. Unfortunately, this approach likely misses the influence of new claims buyers who do not show up in court or changes in activist group composition that are not disclosed. However, the sheer

[2]As further discussed in the Appendix, I also gathered a complete sample of equity that traded during this period, and the general patterns observed are similar to the patterns of trading in bond debt.

sparseness of the prior literature means that this article has much to contribute in illuminating the average impact of claims trading across a large sample of cases.

I begin by establishing foundational facts about claims trading. Although claims trading has been the subject of a long theoretical debate, it is not clear whether claims trading is an important aspect of most large bankruptcy cases or only a handful of cases that have attracted disproportionate scholarly attention. I first show that heavy claims trading is a pervasive feature of most large Chapter 11 cases. For the median bond in the sample, aggregate trading during the bankruptcy period is equivalent to more than 100 percent of the face value of the bond. In fact, Chapter 11 bonds are, on average, more heavily traded than other distressed bonds and are among the most heavily traded bonds in the corporate bond market as a whole.

The chief worry of claims trading critics is that claims trading will make it harder for managers to negotiate with creditors as activist investors with their own agendas trade in and out of the firm's capital structure. As a foundational matter, debt trading appears to be heavy enough to disrupt creditor voting on a plan of reorganization in more than 60 percent of the sample cases. However, examining disclosure statements filed by groups of activist investors, I find that activist groups tend to appear early in the bankruptcy case and to remain stable over time.[3] On average, the cases with late activist appearances also tend to be the cases with the most observed improvement in industry conditions over the bankruptcy period. This suggests that latecomer activists might be inspired by exogeneous changes that increase the expected value of investing in activism, a relatively uncommon occurrence during the brief period most firms are in Chapter 11. Moreover, while I do find evidence that bankruptcy claims trading is positively correlated with a higher likelihood of litigation, that relationship only appears in the data at the beginning of bankruptcy, consistent with early activist entry and relative stability.

Overall, the primary contribution of the article is to provide new facts for an important bankruptcy policy debate that has raged without an empirical foundation. Although data limitations make it hard to come to definitive conclusions, the data support the view that fears about the impact of claims trading on bankruptcy governance are overstated, as least insomuch as claims trading impacts the average case. When activist investors are present, they tend to be groups that already own most of the bond issue, which they likely acquired prior to the bankruptcy or at the very beginning of the bankruptcy case. These groups tend to remain stable over the bankruptcy case, neither losing nor gaining members on average. This is not to say there are not many anecdotal stories of claims trading upending bankruptcy bargains—there are—but the empirical approach in this article suggests that those high-profile cases are not representative of the broader story of Chapter 11 claims trading, which may be more about passive trading and speculation than was previously understood. Clearly, the shadow of claims trading and activist entry would weigh over any bankruptcy bargaining process, but it does not seem to lead to observed

[3]I also find evidence that traditional investors like mutual funds usually sell Chapter 11 bonds long before the firm files for bankruptcy, which is again consistent with the primary period of activist entry occurring prior to the bankruptcy process or at its very beginning.

churn in the activist groups that are management's typical negotiating counterparty in the average case.

The remainder of this article proceeds as follows. Section II describes data collection and the sample. Section III provides first evidence on how active the market for Chapter 11 debt really is and Section IV examines the view that claims trading disrupts the bankruptcy bargaining. Section V studies the change to Rule 2019 to learn more about how traders may have responded to changes in disclosure risk. Section VI concludes.

II. Sample

To learn more about bankruptcy claims trading, I built a sample of trading data from the financial claims of firms that filed for bankruptcy between July 1, 2002 and December 31, 2012. I use July 1, 2002 as the start date for the sample because this is when the TRACE dataset (as further explained below) began recording data on bond trades. I began with Next Generation Research's comprehensive list of "large firms" that filed for bankruptcy, a standard starting point for empirical research (see Ayotte & Morrison 2009). I hand-matched that list to the records of bond and equity trading described below.[4] A firm entered the sample if had loan debt, bond debt, or equity trading during the sample period.[5]

The bond data in this study come from the Enhanced Trade Reporting and Compliance Engine (known as TRACE) dataset maintained by the Financial Industry Regulatory Agency (FINRA). TRACE is a complete record of all buying and selling of corporate bonds, with transaction-level data on all trades during the sample period.[6] As TRACE does not contain any identifying information on the bond contract beyond the CUSIP code, I combine TRACE with MergentFISD's information on bond contracts using CUSIP codes to identify the issuing firm. A bond enters the sample if I observe trading in the bond contract in TRACE's recording of all bond trading between mid-2002 and 2012.

The Chapter 11 bond sample consists of 389,154 trades on 54,536 trading days in 494 bonds issued by 204 firms with an aggregate face value of $512 billion and an aggregate market value of approximately $280 billion. One important question that goes to the generalizability of the patterns reported in this article is what percentage of the broader population of Chapter 11 firms with bond debt are in the sample. As I built the

[4]As this project evolved, the focus shifted more squarely to debt trading and the equity trading results, which are similar to the bond results, were moved to the Online Appendix, which also contains a detailed description of the equity sample.

[5]This article does not discuss or rely on records of loan debt, which were obtained from MarkIt and LSTA, as discussed in greater detail in Ellias (2018). However, the larger sample of Chapter 11 debtors was assembled using the list of loan trades recorded by MarkIt, and many of those firms also used bonds to fund their activities.

[6]As a starting point, I clean the TRACE data for reporting errors as in Dick-Nielsen (2014) and I also eliminate apparent outliers.

sample by focusing on traded debt, it is possible that the sample omits some firms with public bonds that did not trade during the sample period. As TRACE only records trades beginning in 2002, I am unable to offer an estimate of what percentage of firms in the overall sample that issued bond debt prior to a bankruptcy filing saw those bonds trade while the firm was in Chapter 11 for the entire dataset. However, as an exercise, if we make the assumption that every bond issued by a firm that filed for bankruptcy in 2005 and onward traded at some point between 2002 and 2012—providing a two-year period during which some bonds might trade before the issuing firm filed for bankruptcy—I observe trading in 444 bonds issued by 173 firms.[7] Of this broader population, 162 firms enter the sample linked to the trading records of 385 bonds that traded during the firm's Chapter 11 case. This estimate suggests that the sample includes 93.6 percent of the overall population of Chapter 11 debtors that issued bond debt that filed for bankruptcy between 2005 and 2012 and 87 percent of overall bond contracts.

For each debt claim that I could match to a record of a bankruptcy filing, I hand-gathered extensive information about the Chapter 11 case from the court docket. I began with the affidavit supporting the bankruptcy petition (referred to as the "first day affidavit") as well as the disclosure statement for the plan of reorganization. I also examined public securities filings as well as important motions in the case in order to acquire bond contract details like collateral, subordination, and amount outstanding. Importantly, I analyzed the firm's debt contracts in great detail to understand every creditor's relative claim against the firm's assets in terms of collateral, structural subordination, and contractual subordination. By doing so, I can understand which bonds are senior or junior to other bonds and which bonds are *pari passu* with one another. I also recorded the dates of important bankruptcy hearings from information on the court docket, through reviewing hearing agendas, and from the captions to important motions.

The worries of claims trading critics largely center around the difficulties managers can have negotiating a bankruptcy plan as investors trade in and out of the firm's capital structure. This claim focuses on the disruptive role that hedge funds are thought to play in bankruptcy bargaining in their capacity as claims purchasers. To gain insight into this claim, I devote special attention to identifying the role of activist investors in the Chapter 11 process. Federal Rule of Bankruptcy Procedure 9010 requires all attorneys appearing on behalf of a creditor to file a "notice of appearance" with their contact information

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[7]The assumption in this exercise—which could be wrong—is that any censoring in the sample is likely to come from some bonds that did not trade after a Chapter 11 filing but that virtually all bonds are likely to have traded at least once in the two years prior to bankruptcy. If that assumption is correct, then the sample contains 93.6 percent of all large firms with traded bonds or equity that filed for bankruptcy from 2005 onward. I believe that the sample likely contains very close to 100 percent of all large firms with traded debt or equity because all three data sources were hand-matched individually, by three separate research assistants, against the Next Generation Research list of Chapter 11 debtors. I checked each research assistant's work myself to make sure it was reliable and complete. In some cases, a firm that entered the dataset because of observed loan trading also described bond debt in its first day bankruptcy affidavit that was not in MergentFISD, but could be hand-matched against the TRACE dataset using securities filings. Similarly, firms with traded equity were sometimes not listed in Bloomberg but could be identified using a different entity name after the firm entered the dataset because of observed traded debt.

with the court. Accordingly, I identify all "notices of appearance" filed by alternative asset managers announcing their identity to the bankruptcy court.[8]

Further, to examine how activist groups appear and change over time, I examine the disclosure statements that activist groups are required to file with the court describing the group's composition. Although activist funds sometimes appear on their own, most activism is performed by groups of funds that have organized together to pool resources.[9] Federal Rule of Bankruptcy Procedure requires groups of creditors acting together to file a statement disclosing their identities with the court (Janger 2009; Hu & Westbrook 2007).[10] Among other things, activist groups must disclose their identity and the amount of their holdings and they are obligated to update these disclosures when there are material changes. Of the 174 Chapter 11 debtors in the sample with bond debt that filed for bankruptcy in 2004 or afterward, I identify 100 bondholder groups from 67 cases filing a total of 211 Rule 2019 disclosure statements. I connect 48 of these groups to bond trading records to examine how trading patterns relate to observed disclosure.[11]

III. Assessing Liquidity in Chapter 11 Bonds

The literature commonly makes contradictory claims about the robustness of trading in Chapter 11 debt and equity. On the one hand, the literature commonly refers to a "robust secondary market for claims of Chapter 11 debtors" (e.g., Harner 2014). On the other hand, it is also common to see references to distressed debt as an "illiquid asset class" (e.g., Dunkley & Palin 2014). While both of these descriptions are right some of the time—for some debtors, trading in Chapter 11 debt is probably robust and other debtors likely experience relatively little trading in their debt—it is important to

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[8]Asset managers are identified by performing word searchers for "capital management," "asset management," "capital," and "fund" on the docket text for all notices of appearance for the 158 cases for which I am able to obtain the entire court docket and access all the underlying documents. This yields 656 "notices of appearance" filed by apparent hedge funds, not all of which are holding bond debt. I also identify 251 apparent "ad hoc" groups of creditors acting together using word searches for "ad hoc," "informal group," "noteholders," "lenders," and "bondholders."

[9]An example of this "pooling" can be found in *In re Northwest Airlines Corporation, et al.* (2007), where an "Ad-hoc Committee of Equity Holders" was formed and represented by a single firm. Judge Gropper found that the ad hoc committee was a "committee" for the purposes of Rule 2019, thus compelling disclosure of individual holding and member trading history.

[10]I identify Rule 2019 statements on the docket by searching for "Rule 2019" on the sample dockets and then examining each statement by hand to see if it came from a group of investors holding bonds or loans. The sample of 390 Rule 2019 statements is a subsample of the 996 Rule 2019 statements on the dockets of the post-2004 sample firms.

[11]Additionally, to provide further comfort that the pattern observed in this bondholder sample is fairly representative of how activist groups change over the bankruptcy case, I also examine the disclosures of the investor groups holding bank loans. In total, I identify an additional 101 lender groups from 75 cases that filed a total of 179 Rule 2019 statements.

understand how widespread claims trading actually is. Much of the discussion in the literature has focused on a handful of high-profile cases (e.g., Baird & Rasmussen 2010), which, while important, could be outliers.

In this section, I document aspects of the liquidity in Chapter 11 debt to provide context for the policy debate. The financial literature has long acknowledged the chief challenge in trying to measure liquidity: it is not directly observable (e.g., Acharya & Pedersen 2003). While the data are helpful in assessing the trades that did happen, we do not observe the market's willingness to buy the claims of creditors who did not want to sell their claims. Given this data limitation, I take two approaches to assessing liquidity in Chapter 11 bonds. First, I summarize the raw observed turnover in Chapter 11 debt and show how trading varies across the distribution of sample cases and over the course of the bankruptcy process. Second, I contextualize the observed trading by showing how trading in Chapter 11 bonds compares to trading in the corporate bond market as a whole and to other distressed bonds. In the Appendix, I examine a sample of Chapter 11 equity and find that the broader patterns illustrated by the examination of Chapter 11 debt are qualitatively similar to trading in equity.

A. Trading in Chapter 11 Debt

Chapter 11 cases generally follow a statutory process of hearings and court orders, with the debtor first obtaining court approval of bankruptcy financing before proposing a plan of reorganization for a vote of creditors. Some debtors choose to sidestep the plan process altogether, and instead sell the firm in a Section 363 sale outside of the plan process.[12] Figure 1 illustrates the major phases of the average Chapter 11 plan process as well as the alternative of an asset sale under Section 363.

Table 1 displays the distribution of bond trading across bankruptcy cases and over the course of the bankruptcy process. The table reveals a wide distribution of trading and suggests that most large Chapter 11 cases appear to involve heavy trading in bond debt. In fact, for the median bond, aggregate trading is equivalent to more than 92 percent of the outstanding face value of the bond between the petition date and the approval of a disclosure statement. This is not to say that 92 percent of petition date holders of the bond sold their claim to a new investor. As I do not observe the identity of the traders, I cannot know whether I am observing, for example, three trades of approximately 30 percent of the issue, with the other 70 percent held by a patient investor, or whether 92 percent of the bond issue traded once. The tails of the distribution are very different than the median, with the 25th percentile bond only seeing 19 percent aggregate turnover and the 75th percentile bond seeing almost 300 percent aggregate turnover during that same period. Thus, while the majority of Chapter 11 cases involve heavy trading, the level of trading in the most actively traded bonds is qualitatively different from the median case.

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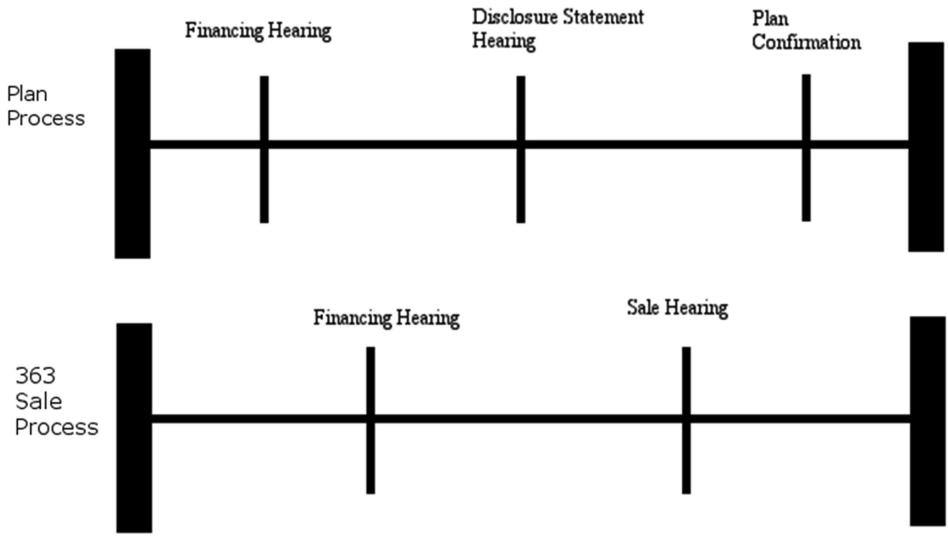
[12]Section 363 of the Federal Bankruptcy Code allows Chapter 11 debtors to sell substantially all the firm's assets outside of the plan of reorganization process that the statute is otherwise designed to implement.

Figure 1: The bankruptcy process.



NOTES: Figure 1 summarizes the stages of the bankruptcy process. When the debtor seeks to approve a plan of reorganization, the judicial approval of a disclosure statement will be followed by the solicitation of creditors to vote on the proposed plan of reorganization.

Examining the data over time shows that, on average, bond turnover falls as the firm moves toward exiting bankruptcy court administration. Panel B of Table 1 shows the percentage of the face value of the bond that trades during the indicated period, divided by the number of bond market trading days. The median bond that trades during the period between the petition date and the approval of debtor-in-possession financing sees 0.77 percent of the face value of the bond trade on each trading day. On average, Table 1 shows that average trading volume falls as the firm moves through the bankruptcy process, with a mere 0.36 percent of the median sample bond trading on each trading day between the approval of a disclosure statement and plan confirmation.

As Table 1 shows, trading volume is most intense between the petition date and the approval of debtor-in-possession financing. However, in unreported results, I find that most of the trading—45 percent of all bond volume in the median case—takes place between the date the debtor-in-possession financing package is approved and the date that the disclosure statement for the plan of reorganization is approved. There are likely two reasons for this. First, on average, that is the longest period of the case, so there are more chances for traders to buy and sell their claims during that period. Second, the plan of reorganization is normally being negotiated during this period, which may generate market interest that allows some traders to exit their positions. In some cases, the buyers might be new investors who want to own the claim; in others, the buyers might be other holders of the same financial claim looking to consolidate their position to improve their bargaining leverage or increase their investment in the debtor.

Table 1: The Distribution of Bond Trading During the Bankruptcy Case, by Phase of Case

Bankruptcy Period	n	*Potential* n	*Mean*	*25th*	*Median*	*75th*	*90th*	*Max*
Panel A: Percentage of Outstanding Bond Issue Trading Between Periods of the Bankruptcy Case, for Cases with Confirmed Plans								
Petition date and DIP financing	296	377	0.61	0.07	0.23	0.67	1.52	24.81
Petition date and disclosure statement approval	418	488	2.44	0.19	0.92	2.87	6.97	28.98
Petition date and plan confirmation	424	491	2.79	0.27	1.13	3.45	7.25	29.00
DIP financing and disclosure statement approval	284	354	1.93	0.11	0.59	2.07	5.20	25.54
DIP financing and plan confirmation	303	369	2.21	0.17	0.73	2.51	5.77	25.55
Disclosure statement approval and plan confirmation	345	455	0.49	0.06	0.19	0.46	1.08	17.54
Panel B: Percentage of Bond Issue Trading per Trading Day Between Periods of the Bankruptcy Case, for Cases with Confirmed Plans								
Petition date and DIP financing	296	376	0.03	0.00	0.01	0.02	0.06	1.55
Petition date and disclosure statement approval	418	486	0.01	0.00	0.01	0.01	0.02	0.15
Petition date and plan confirmation	424	491	0.01	0.00	0.01	0.01	0.02	0.12
DIP financing and disclosure statement approval	284	351	0.01	0.00	0.00	0.01	0.02	0.04
DIP financing and plan confirmation	303	366	0.01	0.00	0.00	0.01	0.02	0.07
Disclosure statement approval and plan confirmation	345	455	0.01	0.00	0.00	0.01	0.02	0.16
Panel C: Percentage of Outstanding Bond Issue Trading Between Periods of the Bankruptcy Case, for Cases with 363 Sales								
Petition date and sale	61	71	1.42	0.16	0.48	1.97	3.99	10.52
Panel D: Percentage of Observed Trading That Takes Place Between Periods of the Bankruptcy Case, for Cases with 363 Sales								
Petition date and sale	61	71	0.01	0.00	0.01	0.02	0.03	0.05

NOTES: Table 1 summarizes trading over the bankruptcy process for Chapter 11 bonds. Panels A and B summarize trading for cases with confirmed plans, with Panel A showing the trading between bankruptcy milestone dates, measured as a percentage of the face value of the bond, and Panel B summarizing the average face value of the bond issue trading for each day the bond market was open between those dates. For example, the 25th percentile bond saw 19.24 percent of the face value of the bond issue trade between the petition date and the date the bankruptcy judge approved a disclosure statement to start the plan voting process. Between the petition date and the approval of a debtor-in-possession financing package, 0.77 percent of the face value median bond traded, on average, for each day the bond market was open for trading. Panels C and D show the analogous numbers for firms that sold themselves in a Section 363 sale outside the plan process. The "Potential *n*" column indicates the number of bonds in the dataset that could have been trading during this period, meaning, for example, that 369 bonds were issued by debtors that obtained debtor-in-possession financing and confirmed a plan of reorganization, of which 303 traded during that period in each debtor's respective case.

While turnover in Chapter 11 bonds appears heavy, the "illiquid" description of distressed debt might still be accurate if Chapter 11 bonds are relatively poorly traded compared to the overall bond market. To assess this, I compare observed trading as a

percentage of face value in each Chapter 11 bond to the level of trading in the bond market as a whole. For each Chapter 11 bond, I create a corresponding subsample of the entire record of trading in the corporate bond market over the period the firm is in bankruptcy. I then calculate a percentile ranking to measure the Chapter 11 bond's relative position in the bond market. For example, a Chapter 11 bond that trades in the 90th percentile of the bond market over the course of the bankruptcy case trades is one of the top 10 percent most actively traded corporate bonds. As it is possible that distressed bonds simply trade in a different market than the normal corporate bond market, I create corresponding subsamples of "distressed" bonds and situate the Chapter 11 bonds within those records.[13]

Figure 2 shows the distribution of Chapter 11 bond percentiles, as compared to the bond market as a whole as well as compared to other "distressed" bonds. The graphs show a wide distribution of trading percentiles, with a cluster in the right corner of the graph. As the figure shows, Chapter 11 bonds are, on average, among the most heavily traded bonds in the corporate bond market. The median Chapter 11 bond trades at the 84th percentile of the corporate bond market as a whole. Chapter 11 bonds are also among the most heavily traded distressed bonds, with the median Chapter 11 bond trading at the 77th percentile of the sample of distressed bonds. Thus, the average Chapter 11 bond experiences both heavy trading both on an absolute and relative basis.

Thus far, this section focused on trading volume as a proxy for liquidity, but the financial literature also considers other aspects of liquidity, such as the cost of completing a buy and sell transaction (Kyle 1985; Bessembender & Maxwell 2008). While I cannot observe this directly, I can estimate it using the Amihud (2002) measure, a well-established proxy for transaction costs from the financial literature. Friewald et al. (2012) examine a sample of defaulted bonds and find that transaction costs in defaulted bonds appear to be relatively high.[14] I follow their methodology and calculate the Amihud liquidity measure over different periods of time for the bonds in the dataset to learn how trading costs change over the bankruptcy process. I also perform the same calculations for the bond market over those same trading windows to contextualize the trading costs of Chapter 11 bonds.

At a high level, the Amihud measure is the sum of the absolute value of all observed investment returns for days where multiple trades are observed, divided by the volume of each trade, divided again by the number of observed trades on that day. Stated formally, the Amihud (2002) measure for bond j of firm x on day t given observed returns on day t indexed by the number of trades of the bond j on day t is specified as:

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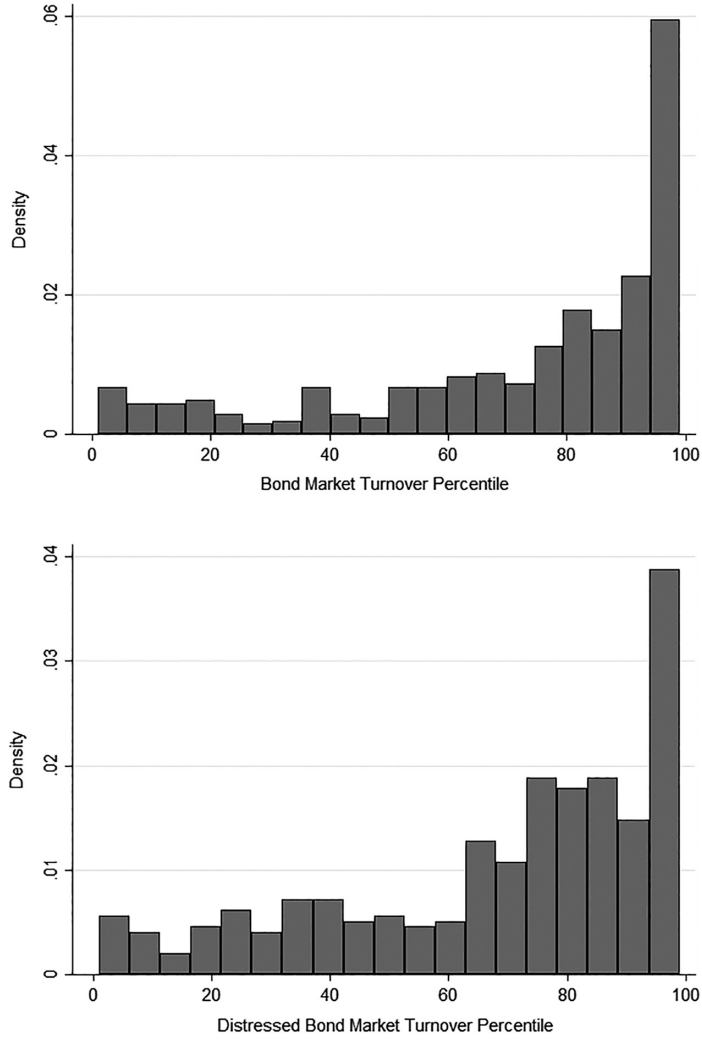
[13]I measure distress using the price of bond, where I define a bond as "distressed" if the price is 80 percent lower, which indicates that the market seriously doubts the financial health of the issuing firm. The qualitative trends in the Figure 2 are similar if I instead use 90 percent as my measure of financial distress.

[14]Friewald et al. (2012) and Jankowitsch et al. (2014) also deploy the price dispersion measure to estimate transaction costs. However, Schestag et al. (forthcoming) caution against using price dispersion measure in OTC bond markets. They suggest, however, that the Amihud measure is correlated with transaction costs and captures an additional dimension of liquidity when paired with volume information as summarized above.

Figure 2: Chapter 11 bond turnover in the context of the corporate bond market.



NOTES: Figure 2 shows the percentage turnover in the Chapter 11 bond between the petition date and the date the firm leaves bankruptcy (either through a confirmed plan or a Section 363 sale), as compared to the bond market as a whole as well as a subsample of "distressed bonds." For each Chapter 11 bond, I calculate the percentage turnover of every other bond in the bond market that traded over the same period and assign the Chapter 11 bond a turnover percentile based on its relative position in the distribution of trading. For example, a bond that trades in the top 10 percent of the overall corporate bond market trades at the 90th percentile. These histograms show the distribution of those percentiles, both for the corporate bond market as a whole as well as a subsample of "distressed" corporate bonds that restricts the comparison to all bonds trading with a price below 80 percent as a proxy for the financial distress of the issuing firm. The results show that Chapter 11 bonds experience a range of comparative trading levels, but that, on average, Chapter 11 bonds cluster in the right-hand corner of the distribution and are, on average, among the most heavily traded bonds in the corporate bond market.

$$Amihud_{j,x,t} = \frac{1}{N_{j,x,t}} \sum_{k_{j,x,t}} \frac{|r_{k_j,x,t}|}{v_{k_j,x,t}}$$

As Table 2 shows, the Amihud measure suggests that bonds issued by Chapter 11 debtors trade with slightly above average trading costs that increase in magnitude as the firm moves through the bankruptcy process before falling again during voting on the plan of reorganization. This measure aims to estimate the price impact of a $1 million transaction and it suggests a trade of $1 million of the median bond between the petition date and the approval of bankruptcy financing is associated with a 0.76 percent price impact, which is at the 58th percentile of all bonds traded in the market over that same time period. The median bond's trading costs increase once debtor-in-possession financing is approved and fall, on average, after the disclosure statement is approved and creditors are voting on the plan of reorganization.

To contextualize these numbers, the transaction costs associated with trading Chapter 11 bonds are slightly higher, but not by very much, than the corporate bond market.[15] These results suggest that trading costs are the lowest when the firm is in the earliest part of the bankruptcy case, which is also when the average daily trading volume appears to be the highest according to Table 1.

IV. Does Claims Trading Disrupt Bargaining, Increase Creditor Conflict, and Impede Negotiations?

Critics worry that claims trading destabilizes the creditor class by creating a revolving door of creditors, where each revolution changes management's negotiating partner and makes reaching a consensual bargain more difficult, increasing conflict and litigation (Miller 2009; Baird & Rasmussen 2010; Tung 1996). In many cases, they argue for increased regulation to promote transparency (e.g., Hammer & Brandess 2010). On the other hand, claims trading proponents argue that claims trading allows activist investors to consolidate multiple claims, which may actually make bargaining more efficient (e.g., Ivashina et al. 2016). In this section, I use evidence from bond trading and court filings to offer insight into how creditors change over the course of the bankruptcy process and how trading might impact creditor conflict. I also offer suggestive evidence into the motivations of claims traders.

The key identification challenge is that an omitted variable, such as value uncertainty, could drive both creditor conflict and claims trading, making it impossible to cleanly identify the impact of claims trading on creditor conflict. A key development in a firm's industry, for example, could lead to increased trading at the same time that it

[15]In unreported results, I compare the Chapter 11 Amihud measures to the submarket of distressed bonds and I find that the trading costs for Chapter 11 bonds are approximately the same as the broader universe of distressed bonds.

exacerbates existing disagreements over how the firm should reorganize. Moreover, creditor conflict itself could drive claims trading as investors buy or sell based on their assessment of, for example, a disagreement between senior creditors and junior creditors. This section, then, takes three approaches to assess the relationship between claims trading, creditor conflict, and bargaining using indirect measures and proxies. First, I look at the volume of claims trading in each case to determine how often trading is sufficiently high to destabilize bargaining and disrupt plan voting. Second, I examine disclosure statements filed by activist investors to examine when activist investors tend to enter Chapter 11 cases and how activist investor groups change, perhaps as a result of claims trading, over the course of the bankruptcy process. Third, I use lagged measures of relative levels of trading to examine whether trading appears to predict litigation, which I use as a proxy for creditor conflict.

A. How Often Is Claims Trading Heavy Enough to Disrupt Bargaining?

At its heart, the claim that the "creditor class" is disrupted is about negotiating and voting on a plan. Section 1126(c) of the Bankruptcy Code provides that a class of creditors approves the plan if favorable votes are cast by creditors holding "two-thirds in amount and more than one-half in number of the allowed claims of such class …" Accordingly, traders opposed to a plan of reorganization can, under some circumstances, vote it down by buying claims equal to one-third in amount of the creditor class. Bankruptcy lawyers colloquially refer to an investor holding one-third of the outstanding creditor class as holding a "blocking position."

To explore the impact claims trading might have on plan confirmation, I construct hypothetical classes that consist of all unsecured debt claims against the debtor and Table 3 summarizes.[16] For each firm in this sample, I sum all trading between important bankruptcy periods and divide it by the aggregate amount of outstanding unsecured debt that the firm reported owing to financial creditors.[17] I then calculate a dummy variable that takes on a value of 1 if more than 33 percent of the aggregate amount of outstanding unsecured debt appears to have traded during the bankruptcy period.

The results suggest that trading is heavy enough to disrupt the creditor class in a sizable number of cases, if we assume that all buyers of claims are new creditors. For example, a potential blocking position was traded between the petition date and the beginning of the voting process (the approval of disclosure statement) in 55 percent of the sample cases. In reality, this calculation suffers from both false positives and

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[16]These estimates omit trade and tort claims, which are generally relatively small in comparison to the larger class of financial creditors (creditors whose claims arise from bond contracts or other unsecured investment contracts). The sample does not include trading in loan debt, so any unsecured loans that trade in the loan market instead of the bond market are also not included for the purposes of this analysis.

[17]The firm's capital structure information comes either from the first day affidavit supporting the bankruptcy petition or securities filings.

Table 2: Estimated Trading Costs During the Phases of the Chapter 11 Process, by Bond

Variable	n	*Potential* n	*Mean*	*25th*	*Median*	*75th*	*90th*	*Max*
Panel A: Average Amihud Estimator Between Periods of the Bankruptcy Case, for Cases with Confirmed Plans								
Petition date and DIP financing	286	376	15.02	0.18	0.76	2.81	7.64	2658.13
Petition date and disclosure statement approval	414	486	23.62	0.19	0.96	2.85	9.70	2658.13
Petition date and plan confirmation	422	491	22.43	0.20	0.99	2.74	9.01	2658.13
DIP financing and disclosure statement approval	280	351	24.46	0.20	1.07	3.40	11.32	2737.81
DIP financing and plan confirmation	297	366	21.86	0.21	1.09	3.14	12.20	2737.81
Disclosure statement approval and DIP financing	324	455	7.37	0.10	0.68	2.04	6.42	963.74
Panel B: Amihud Estimator Percentile Between Periods of the Bankruptcy Case, for Cases with Confirmed Plans								
Petition date and DIP financing	286	376	56	27	58	86	96	99
Petition date and disclosure statement approval	414	486	58	28	60	88	97	99
Petition date and plan confirmation	422	491	58	29	63	86	97	99
DIP financing and disclosure statement approval	280	351	59	28	62	90	98	99
DIP financing and plan confirmation	297	366	60	29	64	87	98	99
Disclosure statement approval and DIP financing	324	455	53	19	57	83	96	99

NOTES: Table 2 shows the Amihud estimator, a measure of trading costs, for Chapter 11 bonds during key periods in the bankruptcy case. Panel B contextualizes the numbers from Panel A in the larger corporate bond market and reveals, for example, that the median Chapter 11 bond that trades between the petition date and the approval of debtor-in-possession financing has estimated trading costs at the 58th percentile of the bond market, or slightly above average.

false negatives. For example, a hedge fund with a 10 percent position in the class of general unsecured claims on the petition date could acquire a blocking position by buying 23 percent of the class and increasing its stake to 33 percent, which would not appear to be the acquisition of a blocking position in this analysis. Alternatively, the aggregate trading of 33 percent of a class of claims could really be three trades of 11 percent of the class, which means no blocking position would have changed hands. Although this estimate should be interpreted with caution, it does suggest that trading is heavy enough in more than half the cases between 2002 and 2012 with unsecured bond debt for a blocking position to have been acquired, complicating bargaining and voting.

B. Do Activist Groups Appear to Enter, Grow, and Change Through Claims Trading?

One place to look for evidence that claims trading influences the governance of Chapter 11 debtors is to focus on the observed behavior of activist investors. After all, trading among passive investors that simply buy the claim to receive a return without any activist behavior would not be terribly important for bankruptcy governance.[18] In this subsection, I use court documents and the bond data to learn how claims trading might be connected to activist investor entry or exit.

First, I find that activist investors generally enter the bankruptcy case toward the beginning of the bankruptcy process. All creditors who seek to be heard in court or who want to be on the court's mailing list must file a notice of appearance on the court docket. Accordingly, I examine all the court dockets for the firms in the bond sample that filed for bankruptcy in 2004 or later ($n = 158$).[19] Within this subsample, I identify 14,387 "notices of appearance," of which 251 appear to be from "ad hoc committees" of activists acting together and 656 appear to be from hedge funds or other alternative asset managers.[20] As Online Appendix Table A1 shows, 58 percent of ad hoc committees file their first notice of appearance before debtor-in-possession financing is approved, with another 30 percent appearing before the disclosure statement is approved and plan voting starts.[21] Of hedge funds, 50 percent appear before the approval of bankruptcy financing and another 32 percent appear before the disclosure statement is approved. To express this in terms of days of bankruptcy, the median ad hoc group appears 24 days into the bankruptcy process, which is 12.5 percent of the median case length of 192 days.

I also examine Rule 2019 disclosures filed by bondholder groups to assess how activist groups change over the course of the bankruptcy process. In general, groups of hedge funds seeking to influence the outcome of the bankruptcy case will form a group,

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[18]While all creditors with impaired claims are entitled to vote on a plan, in practice activist investors are the parties most likely to vote no while passive investors tend to vote yes or not vote at all.

[19]I focus on this period because PACER no longer retains all information for the 2002 and 2003 Chapter 11 filings. This method is inherently inexact because some hedge funds might negotiate privately with management without ever appearing in bankruptcy court. However, litigation is such a key part of bankruptcy negotiation that it seems likely that I am able to observe the vast majority of hedge fund entrance by examining notices of appearance. The willingness and ability to litigate is a key signal of seriousness in bankruptcy negotiations (Ellias 2016).

[20]I identify ad hoc committees and hedge funds with searches of the court docket text. I identify ad hoc committees with searches for "ad hoc," "informal group," "noteholders," "lenders," and "bondholders." I identify hedge funds and other alternative asset managers with searches for "capital management," "asset management," "capital," and "fund." A manual review of the results suggests that this method closely captures the real distribution of hedge funds and ad ho committee notices of appearance in the sample.

[21]These numbers are slightly different than the Rule 2019 sample, which reflects the fact that some "ad hoc" groups never filed their required 2019 disclosure or that the Rule 2019 disclosure came after the notice of appearance, sometimes later into the bankruptcy process. The overall pattern of activist appearance, however, is the same.

creating an obligation to file a Rule 2019 statement. Unfortunately, investors and lawyers did not exhibit perfect compliance with the rule during the sample period.[22] Nonetheless, many investor groups appear to have complied with the rule, at least in part, providing new insight into activist investors and their role in Chapter 11.[23]

As Table 4 summarizes, I find that activist groups largely do not change over the course of the Chapter 11 case, with largely the same funds continuing to hold largely the same amount of debt at the end of the bankruptcy case as they do at the beginning.[24] First, as Panel A shows, slightly less than half (42 percent) of bondholder groups never file an updated Rule 2019 disclosure, indicating that they do not change in a material way. Of the bondholder groups that do file disclosures, slightly more than half (51 percent) change in terms of the composition of their membership, as an investor exits the group or a new one joins. When these groups do update their holdings, they usually report small decreases in the amount of debt they now hold as opposed to an earlier time in the case, suggesting that most groups either do not change or experience attrition that might slightly reduce the group's bargaining power.[25]

Panel B of Table 4 shows that activist investors tend to appear and change the most in the early parts of the bankruptcy case, with 40 percent of all Rule 2019 statements and 53 percent of all bondholder activists disclosing their identity on the court docket before bankruptcy financing is approved.[26] In terms of days of bankruptcy, the median

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[22]The rule actually became the subject of a roaring controversy during the sample period as hedge funds complied with it selectively in most cases and sought to have the rule amended to protect what they viewed as confidential information. However, the typical level of partial compliance was to provide the name of the funds and the amount that the funds hold in aggregate (Gerber 2009), which is enough for the analysis in this section to be reliable.

[23]There are least two reasons to be cautious in interpreting this analysis. First, in some cases, hedge funds act alone instead of in ad hoc groups with other investors, negating the need to file Rule 2019 statements. Second, it is possible that this analysis reflects data truncation as some hedge funds ignore their obligation to update their holdings when there is a material change, as the rule requires, which would make examining updates to Rule 2019 disclosures unreliable. In Online Appendix Table A2, I find that the level of trading during the case is positively correlated with updated Rule 2019 disclosures, suggesting that heavy trading is associated with a higher likelihood of an updated Rule 2019 statement. That provides some comfort that examining sequential Rule 2019 disclosures offers reliable information on how the composition and holdings of investor groups change over the bankruptcy case.

[24]In Online Appendix Table A3, I track changes in activist groups holding bank loans and find a similar pattern to the activity of bondholders, suggesting that, in general, the activist investing groups that appear in bankruptcy court do not consolidate the claim during the Chapter 11 case. They may very well do so, however, prior to the bankruptcy filing.

[25]Of course, investors may choose to exit because their activist intervention has proven successful or because it has failed, in which case the entrance or exit of an activist would not be terribly important for bankruptcy governance.

[26]There tends to be a lag between the appearance of an ad hoc group and its first Rule 2019 statement as the creditors' lawyers catch up. The median "ad hoc" group files a notice of appearance 24 days into the bankruptcy case. However, as Panel A of Table 4 shows, the median bondholder activist group files its first 2019 statement about three weeks later, 48 days into the bankruptcy case.

Table 3: Percentage of Cases with Potential Blocking Position Traded in Funded General Unsecured Claims Class, for Cases with Plans

Bankruptcy Period	*Potential Blocking Position Traded in % of Sample*	*Full Sample* n
Petition date and DIP financing approval	0.29	147
Petition date and disclosure statement approval	0.55	146
Petition date and plan confirmation	0.61	148
DIP financing and disclosure statement approval	0.44	118
DIP financing and plan confirmation	0.54	124
Disclosure statement approval and plan confirmation	0.28	128

NOTES: Table 3 shows the percentage of sample cases in which a hypothetical blocking position (>33 percent of the outstanding unsecured class of claims) was traded. For example, more than 33 percent of a hypothetical class of unsecured claims traded in 28.93 percent of cases with unsecured debt. Each row of the sample is restricted to cases where a plan of reorganization is confirmed and where the second event occurred after the first (e.g., the DIP financing and disclosure statement approval row leaves out cases where DIP financing was approved by the bankruptcy court after the approval of a disclosure statement, or where they occurred on the same day) and where unsecured debt issued by the Chapter 11 debtor is observed to trade at some point during the sample period.

bondholder Rule 2019 statement was filed 42 days into the bankruptcy process.[27] Panel C demonstrates that the original group of activists largely remains intact throughout the entirety of the bankruptcy process and that they continue to account for the vast majority of the debt held by the updated group, with, on average, 84 percent of the original group holding 86 percent of the debt held by the time of the final disclosure.

One potential explanation for this pattern is that the activists might sign confidentiality agreements that restrict their ability to buy or sell debt, leaving the holdings of the group relatively static. In that case, observed trading might largely be from passive investors to other passive investors.[28] As these investors do not tend to intervene in bankruptcy, their transactions occur without seriously impacting the average bankruptcy case.[29] New investors may largely avoid joining an existing group because doing so might require signing the confidentiality agreement that allows negotiations to occur.

Moreover, the sheer existence of a group of activists might deter other investors that want to deploy an activist strategy from entering. As the median existing activist

[27]This means the group was active and disclosed with about 80 percent of the median Chapter 11 process yet to run. In reality, the group was probably active and engaged earlier, most likely before the Chapter 11 filing, but I do not observe this systematically.

[28]Harner (2008) surveys distressed investors and finds that 60 percent of them never invest with an eye toward controlling the company through the investment.

[29]Moreover, it could be the case that when a firm falls into financial distress, existing creditors have multiple ideas about how the firm should react to the distress. Those activists may buy and sell claims from and to each other, with the effect that the group has largely come to a unified approach by the time the firm enters bankruptcy, which could promote group stability.

Table 4: Observed Changes in Composition and Holdings of Bondholder Activist Groups Over Bankruptcy Process

Panel A: Summary of Bondholder Rule 2019 Statements

	First 2019 Statement	*Update #1*	*Update #2*	*Update #3*	*Update #4*	*Update #5*	*Update #6*
Number of activist groups appearing	100	58	25	14	9	3	2
Mean percentage of total bond issue	0.67	0.52	0.47	0.46	0.53	0.89	N/A
Mean change in holdings	N/A	–0.07	–0.03	–0.03	–0.16	–0.05	N/A
% Adding funds	N/A	0.37	0.52	0.55	0.66	1.00	1.00
% Subtracting funds	N/A	0.26	0.30	0.36	0.66	0.33	0.00
% Some change in activist group identity		0.51	0.70	0.57	0.88	0.66	1.00
Median # of days after petition date	48	194	287	159.5	336	426	634

Panel B: Rule 2019 Disclosure Statements by Bondholder Activist Groups, by Period of Bankruptcy Case

	Petition Date and DIP Financing	*DIP Financing and Disclosure Statement Approved*	*Disclosure Statement Approval and Plan Approval*
% of first Rule 2019	0.53	0.39	0.08
% of second Rule 2019	0.32	0.49	0.19
% of third Rule 2019	0.38	0.56	0.16
% of fourth or higher Rule 2019	0.23	0.65	0.12
Percentage of all 2019 statements	0.4	0.47	0.12

Panel C: Average Amount of Original Bondholder Activist Group Remaining After Updating Rule 2019 Statement

	First 2019	*Update #1*	*Final Update*
Percentage of funds remaining	1	0.86	0.84
Percentage of group holdings owned by original 2019 group	1	1	0.86

NOTES: Table 4 summarizes the Rule 2019 disclosures filed by groups of activists holding debt issued pursuant to a bond indenture ("bond debt"). For example, Panel A shows that the average ad hoc investor group held 67 percent of the class of debt represented by the group as evidenced by the first Rule 2019 statement. Of ad hoc investor groups filing an update to the initial Rule 2019 statement, the average group held 52 percent of the outstanding class of debt. Panel B shows that 53 percent of ad hoc activist groups filed their initial Rule 2019 disclosure before the judge approved the firm's bankruptcy financing, as did 32 percent of groups filing two Rule 2019 disclosures. Panel C shows that, for the ad hoc groups filing an updated Rule 2019 statement, 86 percent of the original investors remained, holding, on average, 100 percent of the debt held by the group.

group already controls the majority of its class of bonds, there is probably very little space for a newcomer activist to turn a profit by buying a minority position and entering the case. Even if circumstances were to change and a different restructuring transaction becomes optimal, the existing activist group may prefer to capture those gains itself rather than to sell to new investors. Additionally, the expected gains to joining an existing activist group are also probably fairly low if the existing activists are not somehow extracting private benefits, which might create incentives to free ride instead of devoting money and time to joining the activist group. The sophistication and firm-specific knowledge of the existing group of activists may independently discourage the entry of new activists, leaving investors with passive investment strategies to trade the portion of the firm's debt not owned by the activist group.

While I cannot test this hypothesis directly, I do find evidence that is consistent with it. First, I find evidence that the traditional investors that fund the debt of healthy corporations exit their Chapter 11 investments far in advance of bankruptcy, suggesting that investors capable of activism have already acquired most of the Chapter 11 debt well in advance of bankruptcy. Mutual funds and other registered investment companies—a category that omits most of the alternative asset managers that engage in activist investing in bankruptcy—are required to disclose their holdings twice a year through Form N-Q. I scrape all the Form N-Q filings filed between 2008 and 2012 from the SEC server and use machine reading to identify which mutual funds hold Chapter 11 bonds. Of the 44,162 Form N-Qs filed by 3,368 fund managers, I identify 1,346 Chapter 11 bond investments held by 48 funds.[30] Following those investors over time, I find that the average fund holding the bond of a future Chapter 11 debtor within two years of bankruptcy ($n = 104$) exits the position at least four months before the petition date and perhaps as many as 10 months due to delays in reporting requirements.[31] Further, of the purchases of the bonds of Chapter 11 debtors by mutual funds ($n = 66$) within two years prior to the bankruptcy filing, only 11 are reported after the petition date, and delays in reporting requirements mean they could have all come earlier in time.

Second, I do not find evidence of a disproportionate market focus on trading the bonds that will receive control of the debtor after the bankruptcy case is over. Instead, traders appear to be equally interested in the claims that receive debt or cash recoveries from the bankruptcy process, which is what we might expect if a significant proportion of claims trading was the purchasing of claims by investors interested in passively holding

[30]I use this period because the requirement to file Form N-Q in HTML only started in 2008. The vast majority of mutual funds invest in debt, not equity, and fewer still focus on noninvestment grade debt, which explains why this number is so low. "Chapter 11 bond" refers to a bond issued by a firm that filed for Chapter 11 during this four-year period.

[31]I observe snapshots of holdings, which makes it harder to identify this date with precision. Form N-Q must be filed twice a year, but a sale one day after the last report will result in a change in mutual fund holdings in the next report, approximately six months later.

the claim and earning a return.[32] For each sample case with a distribution pursuant to a plan of reorganization, I identify the form of consideration that the bondholder will receive from the disclosure statement. For ease of exposition, I combine these into two groups: payments in cash or debt or payments in equity.[33] As Online Appendix Table A5 shows, there is no statistical difference in the average daily turnover for the bonds that are paid in cash or debt as opposed to the bonds that are converted to equity at the end of the bankruptcy process.

Finally, given that activists seem to enter early, I hypothesize that late entrance might, on average, be driven by exogeneous changes in the bargaining environment that increase the expected value of Chapter 11 activism for some creditors. In general, activists probably prefer to have some role in shaping the bankruptcy financing process given the importance of debtor-in-possession loans to bankruptcy governance (Skeel 2004). However, activists might organize and intervene in the bankruptcy process relatively later in time if there is some sort of positive news about the firm's prospects. An exogeneous change that improves the firm's value might change the expected value of an activist investing strategy and inspire investors who were not previously engaged in the case to try to influence the outcome of the Chapter 11, perhaps because they believe their bonds are now more valuable.

To assess this possibility, I examine a proxy for an improvement in the firm's prospects: the market return of industry-comparable firms. For every firm in the sample, I identify all publicly traded firms in the same industry and calculate the equally weighted return of those firms over the period that each debtor is in bankruptcy.[34] In Figure 3, I summarize the average number of days between the petition date and the filing of the first Rule 2019 disclosure statement. As Figure 3 shows, the firms whose industries do the best over their time in bankruptcy also are the firms most likely to see a group of activists make an unusually late entry.[35] Although other factors are likely to also explain late activist entry, this analysis supports the view that exogeneous events might be an important driver of shifts in the bankruptcy bargaining environment. It is true that these late interventions may be unlikely to occur without claims trading—it is not obvious whether these late interveners were just silent creditors before becoming active participants or new owners of the claims—but to the extent claims trading does drive these late interventions, it suggests that claims trading increases the exposure of

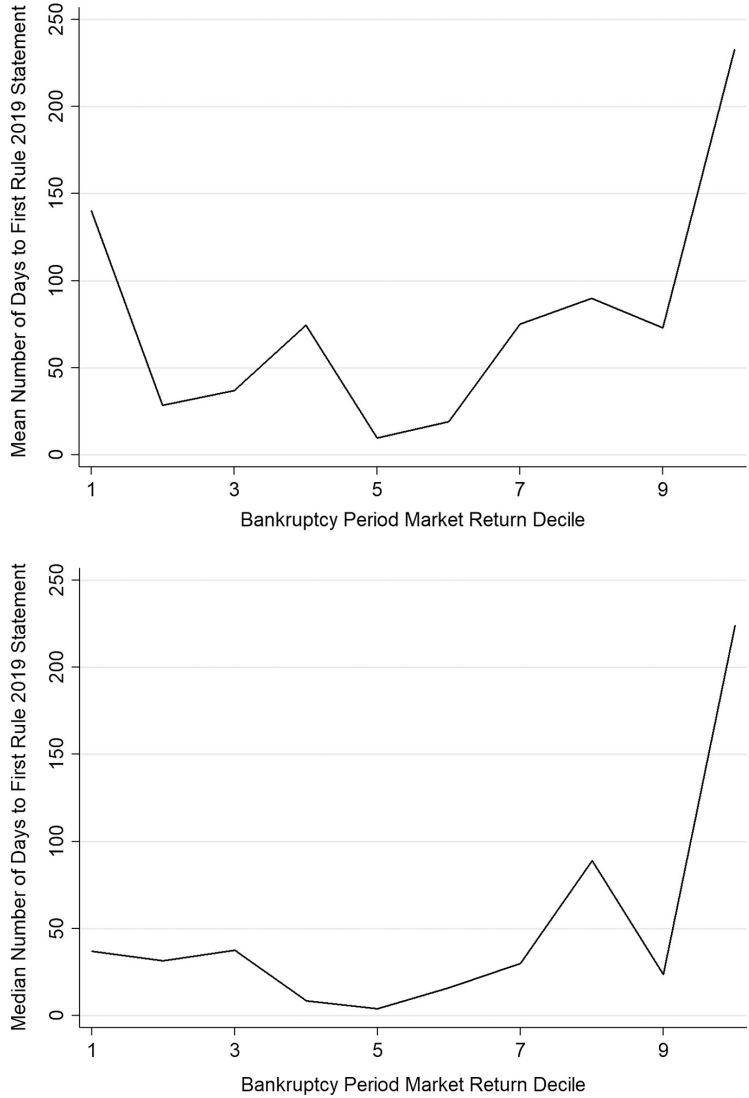
[32]It is also possible that investors are simply bad at identifying the future fulcrum claim. However, the average price of a Chapter 11 claim does not change that much from the beginning of the bankruptcy case to the end (Ellias 2018), suggesting that investors are, on average, very good at understanding how the bankruptcy will unfold and what creditor recoveries are likely going to be.

[33]As Online Appendix Table A4 shows, this analysis is similar if I treat debt and cash as two separate groups as compared to the bonds that receive equity.

[34]Comparable firms are identified using the firm's three-digit SIC code.

[35]In Online Appendix Table A6, I show that the pattern illustrated in Figure 3 is also statistically significant in a regression analysis.

Figure 3: Average days before the filing of first Rule 2019 statement, by comparable firm return over Chapter 11 process.



Notes: Figure 3 shows the average number of days between the petition date and the filing of the first Rule 2019 statement. The unit of analysis is a bond contract ($n = 84$) issued by a firm with an identifiable three-digit SIC code whose holders filed a Rule 2019 statement disclosing their identity as an activist group. The Bankruptcy Period Market Return Decile is calculated by taking the average return of publicly traded industry comparable firms over the period each firm is in Chapter 11. The first decile contains the bottom 10 percent of industry returns while the 10th decile is the top 10 percent of industry returns. The figures show that bondholders whose industries do the best over Chapter 11 tend to, on average, file initial Rule 2019 statements later in the bankruptcy process.

bankruptcy governance to market developments. One reason we may see relatively few late activist entrances is that industry conditions seldom change enough to attract newcomer activists during the six months the median sample firm spent in Chapter 11. In fact, the median industry return of a Chapter 11 debtor over the sample period was only 0.02 percent.[36]

C. Does Claims Trading Appear to Increase the Probability of Litigation?

While it is difficult to assess any link between trading and contentious negotiations, the court docket offers the ability to observe and examine some correlations. In particular, I focus on trading and litigation before important hearings in the bankruptcy case and look to see whether trading in a claim is correlated with the probability of an objection to management's motion being filed on the court docket by holders of the claim. Litigation is an imperfect measure of contentious negotiations, as some negotiations likely do not lead to written objections while some objections may not implicate serious issues, so caution is due in interpreting the findings in this section. Additionally, it is difficult to assess the causal arrow, as traders may buy claims in anticipation of litigation without actually increasing the likelihood that someone litigates. However, litigation is a key part of bankruptcy negotiations (Ellias 2016) and if trading is positively associated with the likelihood of litigation it would support the view that claims trading not only can complicate bargaining, but that it does.

Table 5 shows those regression models. The independent variable of interest in Model 1 is the aggregate amount of trading in the month prior to the objection deadline. The independent variable of interest in Model 2 is an indicator variable that takes on a value of 1 if trading in the month prior to the objection deadline was heavier than trading in the month before that, a proxy for an uptick in investor interest in trading the claim. For example, if the objection deadline was April 1, the variable would equal 1 if aggregate trading was higher in March than it was in February. The dependent variable takes on a value of 1 if the holders of the creditor's claim filed an objection to management's motion.

The results suggest that relatively higher levels of trading are associated with a higher probability of objection when the motion at issue is the debtor-in-possession financing motion, which is usually the beginning of the bankruptcy process.[37] However, I find no relationship between the measures of trading and the likelihood of observing an objection when I focus on objections filed later in the bankruptcy process. This is consistent with the general pattern observed above, where the activist investors that seek to influence the bankruptcy process enter the case early. While

[36]The distribution of returns is strongly skewed to the right. The top 10 percent of Chapter 11 debtor industry publicly traded comparables saw an 80 percent or higher return over the time the firm was in Chapter 11, but the 75th percentile industry only returned 20 percent, suggesting that dramatic industry shifts that might upset Chapter 11 bargaining expectations are relatively unusual.

[37]It could also be the case that investors buy claims knowing an objection is already highly likely.

Table 5: Claims Trading and the Probability of an Objection

	(1)	(2)	(3)	(4)	(5)	(6)
	Claimant Objection to DIP Motion?	*Claimant Objection to DIP Motion?*	*Claimant Objection to Disclosure Statement?*	*Claimant Objection to Disclosure Statement?*	*Claimant Objection to Plan?*	*Claimant Objection to Plan?*
Log funded debt	–0.195	–0.198	–0.029	–0.060	0.411**	0.383**
	(0.164)	(0.166)	(0.188)	(0.203)	(0.177)	(0.186)
Log size of claim	–0.230	–0.191	0.362	0.386	–0.118	–0.097
	(0.146)	(0.150)	(0.252)	(0.272)	(0.251)	(0.277)
Prenegotiated bankruptcy	–0.103	–0.093	0.187	0.147	0.755	0.695
	(0.383)	(0.386)	(0.424)	(0.425)	(0.540)	(0.530)
Contractual subordination	–0.278	–0.313	0.211	0.203	0.427	0.463
	(0.351)	(0.350)	(0.344)	(0.350)	(0.451)	(0.448)
Total bond trading in 30 days prior to objection deadline	0.125***		–0.027		–0.089	
	(0.043)		(0.052)		(0.066)	
Increase in trading prior to hearing		0.484**		0.276		–0.301
		(0.242)		(0.233)		(0.261)
Psuedo-R^2	0.14	0.13	0.13	0.13	0.19	0.19
N	520	520	520	520	492	492
Unique debtors	191	191	191	191	191	191
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Law firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes

*$p < 0.1$; **$p < 0.05$; ***$p < 0.01$.

NOTES: Table 5 shows logistic regression models. Standard errors clustered at the firm level are in parentheses. The dependent variable is a binary variable that takes on a value of 1 if the creditor filed an objection to the debtor's motion (either a debtor-in-possession financing motion, a disclosure statement for a plan of reorganization, or approval of the plan itself) and a 0 if the debtor filed the motion and the creditor did not object. In Models 1, 3, and 5, the dependent variable of interest is the raw turnover (the percentage of the overall issue) trading in the 30 days prior to the objection deadline for the motion of interest. In Models 2, 4, and 6, I construct a dummy variable that takes on a value of 1 if the trading in the 30 days immediately prior to the objection deadline was heavier than the trading in the period between 60 and 30 days prior to the deadline, which is a proxy for increased investor interest in trading the bond.

some litigious activists may enter later, on average they do not, which may be why I do not observe a systematic relationship between claims trading and objections filed later in the plan process.[38] It may also be the case that the types of investors who speculate on bankruptcy litigation also enter the bankruptcy case early, making the resulting correlation spurious. However, as most activist groups do not emerge on the very first day of the bankruptcy case but instead soon thereafter, it is also possible, and perhaps more likely, that Table 5 is picking up on activist entrance or claim consolidation by existing activists early in the case and trading by investors that do not increase the probability of observing courtroom activism, on average, later in the case.

[38]Latecomer investors may also have problems disrupting the results of prior bargaining, especially if the bankruptcy judge is likely to view new activist investors more skeptically when they engage in a late-stage intervention.

V. Conclusion

These results are likely to dissatisfy both critics and proponents of bankruptcy claims trading. Clearly, both critics and proponents tell a story that is accurate at least some of the time. In some high-profile cases, claims trading has complicated and delayed a firm's emergence from bankruptcy. In others, claims trading has facilitated the entrance of activist hedge funds that bring capital and expertise that aid the firm's restructuring. The contribution of this article is to show, over a large sample, what the average effects of claims trading appear to be. While some caution is due in interpreting the findings in this study due to identification challenges and data limitations, these results provide a foundation for future research and policy debates about bankruptcy claims trading.

Most importantly, I find that claims trading is a pervasive feature of Chapter 11, but that the best interpretation of the evidence suggests that the impact of claims trading on bankruptcy outcomes is overstated. This statement comes with a strong caveat. Observed activist entry is an imperfect proxy for changes in the composition of the creditor body, and it is possible that there are important changes that my methodology does not observe. For example, some of the passive investors who buy claims might have activist capabilities whose presence at the edge of the bankruptcy case influences negotiations and outcomes. Indeed, the possibility of activist entrance may place pressure on the various creditors to support one restructuring transaction over another.

Further, it is likely the investors holding the claims on the petition date are already, in many if not most cases, secondary market purchasers, meaning that the trading of distressed debt may be very important to the governance of distressed firms, even if it is less important to the administration of bankruptcy law. Bankruptcy law takes the creditor body as it stands on the first day of the bankruptcy case; to the extent that claims trading occurs prior to a bankruptcy filing, it is unlikely to trouble bankruptcy policymakers. With all that said, the results in this article do strongly support the view that claims trading's disruption to bankruptcy negotiations is less severe than many critics feared.

The results in this article conflict with Ivashina et al.'s (2016) findings that activist investors play an important role in consolidating the class of trade claims in bankruptcy. I hypothesize that this conflict may be a result of trade creditors largely not looking to sell their claims until the bankruptcy case has been initiated. Bonds, on the other hand, benefit from a strong preexisting trading infrastructure and tend to be liquid and held by sophisticated investors before the firm even falls into financial distress.[39] This suggests that different types of claims may have different periods of intense liquidity, even though they may be ultimately entitled to the same payoff at the end of bankruptcy.

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[39]As Ivashina et al. (2016) find, most of their trading occurs immediately after a bankruptcy filing, which they take to suggest that the disclosure of creditor names and addresses "catalyzes trading" in that market.

This study is missing a large part of the claims trading market: trading in corporate loans. While the patterns of trading in corporate bonds may, in fact, be representative of trading in loans, further research is needed to learn more about them. Corporate loans are only increasing in importance due to the activity of private equity firms and the increasing popularity of loan-to-own strategies. More research is urgently needed in this area, especially to connect trading to bankruptcy outcomes and to learn more about the motivations of traders and how they change over the course of a bankruptcy case.

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Rules Cited

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Federal Rule of Bankruptcy Procedure 9010.
The Bankruptcy Act of 1978.

Appendix

Patterns of Trading in Chapter 11 Equity

In this appendix, I examine patterns of trading in Chapter 11 equity to determine how similar it is to the patterns of trading in Chapter 11 bond debt. There are important differences between the market for Chapter 11 bonds and Chapter 11 equity. Most importantly, the market for distressed equity is much easier for investors to access. Although Chapter 11 equity is normally delisted from a public exchange prior to, or shortly after, a Chapter 11 filing, it generally will continue to trade over the counter and retail investors can easily buy and sell it. Prior work suggests that trading in the equity of bankrupt companies might be driven primarily by "a particular retail investor clientele who uses [the lottery-like characteristic of the stock of bankrupt firms] to gamble in the market" (Coelho et al. 2010:39). The bond market, on the other hand, is harder to access and requires larger amounts of capital as bonds tend to trade at much higher prices than

Table A1: The Distribution of Equity Trading During Bankruptcy Case, by Phase of Case

Variable	n	*Potential* n	*Mean*	*25th*	*Median*	*75th*	*90th*	*Max*
Panel A: Percentage of Outstanding Equity Trading Between Periods of the Bankruptcy Case, for Cases with Confirmed Plans								
Petition date and DIP financing	84	87	1.25	0.28	0.77	1.49	2.78	15.71
Petition date and disclosure statement approval	99	102	2.61	0.67	1.43	3.68	6.47	14.16
Petition date and plan confirmation	99	102	3.33	0.87	2.22	4.28	8.48	18.22
DIP financing and disclosure statement approval	78	85	1.58	0.27	0.69	1.34	5.48	14.87
DIP financing and plan confirmation	83	86	2.23	0.34	1.02	2.60	6.52	15.10
Disclosure statement approval and plan confirmation	86	90	0.87	0.11	0.31	0.93	1.67	11.92
Panel B: Percentage of Outstanding Issue Trading per Trading Day Between Periods of the Bankruptcy Case, for Cases with Confirmed Plans								
Petition date and DIP financing	83	87	0.04	0.01	0.03	0.05	0.10	0.31
Petition date and disclosure statement approval	99	102	0.03	0.01	0.01	0.02	0.05	0.62
Petition date and plan confirmation	99	102	0.02	0.01	0.01	0.02	0.04	0.19
DIP financing and disclosure statement approval	78	85	0.02	0.00	0.01	0.01	0.03	0.33
DIP financing and plan confirmation	83	86	0.02	0.00	0.01	0.02	0.04	0.24
Disclosure statement approval and plan confirmation	86	90	0.02	0.00	0.01	0.01	0.03	0.26
Panel C: Percentage of Outstanding Equity Trading Between Periods of the Bankruptcy Case, for Cases with 363 Sales								
Petition date and sale	34	35	1.91	0.34	0.92	3.06	5.19	5.82
Panel D: Percentage of Observed Trading That Takes Place Between Periods of the Bankruptcy Case, for Cases with 363 Sales								
Petition date and sale	34	35	0.03	0.00	0.01	0.03	0.11	0.16

NOTES: Appendix Table A1 summarizes trading over the bankruptcy process for Chapter 11 equity. Panels A and B summarize trading for cases with confirmed plans, with Panel A showing the percentage of the outstanding equity trading between bankruptcy milestone dates and Panel B showing the average daily trading in the debtor's equity for each day the market was open between those two dates, again expressed as a fraction of the outstanding equity. For example, the 25th percentile debtor saw trading equivalent to 66.96 percent of the outstanding equity trade between the petition date and the date the bankruptcy judge approved a disclosure statement to start the plan voting process. Between the petition date and the approval of a debtor-in-possession financing package, 2.95 percent of outstanding equity traded, on average, for each day the market was open for trading. Panels C and D show the analogous numbers for firms that sold themselves in a Section 363 sale outside the plan process. The "Potential *n*" column indicates the number of firms with traded equity in the dataset that could have been trading during this period, meaning, for example, that 87 bonds were issued by debtors that obtained debtor-in-possession financing and confirmed a plan of reorganization, of which 83 traded during that period in each debtor's respective case.

Chapter 11 equity. However, it is still useful to compare the trading patterns of equity during the bankruptcy to the debt results in Table A1.

To do so, I gathered a sample of equity data from Bloomberg. The equity sample is daily summaries of high, low, opening, and closing prices and traded volume for over-the-counter or exchange traded equity during the sample period. Just as with the bond debt, a firm entered the equity sample if it filed for Chapter 11 during the sample period and had publicly traded equity in the records maintained by Bloomberg at any point during the sample period. The Chapter 11 equity sample contains trades of more than 38 billion shares issued by 135 firms on 36,323 trading days with an aggregate market value of approximately $335 million. Approximately 78 percent of observed trading days involve transactions with a price per share of less than $1. As Chapter 11 equity nearly always trades on every day a firm is in bankruptcy, this sample represents, to the best of my knowledge, a complete record of trading in Chapter 11 equity.

The general pattern of equity trading in Appendix Table A1 is similar to the bond trading in Table 1, although there are clearly some distinctions between bond and equity trading. Most importantly, trading in the equity of Chapter 11 debtors is heavier as a raw percentage of outstanding shares than trading in Chapter 11 bonds, just as trading in equity markets is generally heavier than trading in bond markets. The median debtor with observed trading sees almost 77 percent turnover in aggregate outstanding equity between the petition date and the approval of debtor-in-possession financing, as compared to 22 percent of the median outstanding bond.