Do Hedge Funds Exploit Material Nonpublic Information? Evidence from Corporate Bankruptcies[*]

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Abstract

Serving on unsecured creditors' committee (UCC) of a bankrupt firm allows hedge funds to gain access to material nonpublic information. Although hedge funds are prohibited from trading bankrupt firm's securities with information access, less is known about whether such information access facilitates hedge funds' trading in securities of other firms. We show that hedge funds have higher portfolio turnover and make large trades in the few quarters after joining UCC. Hedge funds do not trade differently after accessing public information of bankrupt firms, and other institutional investors do not experience abnormal portfolio turnover after joining UCC. Hedge funds' large trades concentrate in stocks of firms that have close economic linkages with the bankrupt firm. Those trades are profitable. The evidence suggests that hedge funds exploit material nonpublic information to trade across asset markets.

Keywords: Bankruptcy, Unsecured Creditors' Committee, Hedge Funds, Material Nonpublic Information, Informed Trading
JEL classification: G14, G23, G33

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1 Introduction

Hedge funds play a prominent role in shaping the restructuring outcomes of financially distressed firms (Jiang, Li, and Wang, 2012, Lim, 2015, Elias, 2016). Their deep knowledge in understanding the legal process of bankruptcy reorganization, activism in corporate governance, and sophisticated strategies in trading distressed securities allow distress-investing hedge funds to generate superior returns in the past three decades in the US (Figure 1).

[Insert Figure 1 Here]

Hedge funds' most popular entry point in the capital structure of distressed firms is unsecured debt because its "fulcrum" nature and option-like payoffs. Holding large amount of unsecured bonds of a financially distressed firm, hedge funds often join the unsecured creditors' committee (UCC) shortly after the firm files for Chapter 11 bankruptcy. Owing fiduciary duties to all represented unsecured creditors and sitting on the front seat of the bargaining table, UCC members are granted by court to access firm's material non-public information such as its proprietary financial projections and business plans as well as the competitive landscape of related industries. Hence, the Securities and Exchange Commission (SEC) has specific rules prohibiting UCC members from trading debt securities of the bankrupt firm and has, in fact, imposed significant penalties on firms and individuals that violated those rules through its enforcement actions.

Although they may be disincentivized to trade bankrupt firms' debt securities while serving on the UCC given those rules, little is known about whether hedge funds exploit material nonpublic information of the bankrupt firm to facilitate their trading across asset markets. This paper is the first study to examine whether hedge funds trade securities of

nonbankrupt firms after gaining access to material nonpublic information of a bankrupt firm.[1]

We construct a comprehensive sample of hedge funds' involvement in the UCC of all Chapter 11 bankruptcies filed by large public US firms from 1996 to 2019. After retrieving a list of Chapter 11 filings from the Florida-UCLA-LoPucki Bankruptcy Research Database (BRD), we search electronic court dockets obtained from the Public Access to Court Electronic Records Database (PACER) to determine whether the U.S. Trustee appointed an UCC for each firm and the identities of the members. We are able to determine whether hedge funds are UCC members for all 612 cases with an UCC formed.[2] We find that about 40% of Chapter 11 cases have at least one hedge fund serving on the UCC. We merge all institutional investors with Refinitiv 13F Database and for hedge funds, we further merge them with the Lipper TASS Hedge Fund Database. Our final sample includes 79 unique hedge funds that have ever served on the UCC in 144 unique Chapter 11 cases throughout the sample period.

One identifying assumption for our main empirical tests is that hedge funds trade large quantity of distressed debt of a portfolio of firms and they do not predict realized bankruptcy among these financially distressed firms. A bankruptcy filing triggers UCC formation and thus hedge funds' access to information, rather than hedge funds endogenously buying large amount of debt right before or after a bankruptcy filing. This

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[1]Prior literature shows that an important source for hedge funds' superior performance is their ability to access and process private information (Massoud, Nandy, Saunders, and Song, 2011, Gao and Huang, 2016, Gargano, Rossi, and Wermers, 2017, Kumar, Mullally, Ray, and Tang, 2020). Yet none of the studies provides direct evidence on hedge funds' trading after gaining access to *material nonpublic* information of corporations, which can be an important source for generating superior returns. Interestingly, Kacperczyk and Pagnotta (2019) construct a unique dataset of SEC investigation cases and find that some hedge funds with close connections with corporate insiders are caught and prosecuted by SEC for using material nonpublic information to trade stocks and options.

[2]We use "hedge funds" to refer to hedge fund management companies since we observe their stock holdings at the company level.

assumption is plausible given that UCC is typically formed within several weeks of a Chapter 11 filing and distressed bonds are highly illiquid, making it challenging for a hedge fund to build up a large stake within a short period of time (Longstaff, Mithal, and Neis, 2005, Chen, Lesmond, and Wei, 2007). Nonetheless, before performing our main tests, we empirically verify that the arrival of an UCC event is not predictable based on observable features of hedge funds. Specifically, we generate alternative measures to describe the arrival of UCC events and find that none of these measures is correlated with hedge fund characteristics in a statistically significant pattern.

Our baseline specifications show that hedge funds appointed as UCC members (UCC hedge funds) tend to have high portfolio turnover following UCC formation. We find that after joining UCC, hedge funds are more likely to have high portfolio turnover by 12.4 percentage points. This translates into a 28.8% increase relative to the unconditional probability of a hedge fund making above-median turnover in a given quarter. Similarly, we find that UCC hedge funds are more likely to make large-size trades by 11.0 percentage points. This probability differential is of economic significance as well when compared with the sample mean of *Large Trade* being 57.3 percentage points.[3] On the extensive margin, our evidence indicates that hedge funds tend to make a greater number of large-size trades upon being appointed as UCC members.

We perform an extensive battery of additional tests to ensure that the abnormal stock trading activities that we document are driven by access to material nonpublic information through UCC. First, we examine whether hedge funds specialized in distress debt markets have abnormal stock trading behavior in the presence of bankruptcy-filing events but in the absence of UCC formation. That is, we investigate whether UCC hedge funds

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[3]*Large Trade* is an indicator variable that is equal to one if a hedge fund company has at least one large trade during a quarter, and zero otherwise. More detailed information and all variable definitions are in Table 1.

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respond to UCC information or public information released via bankruptcy filing. We classify all hedge funds that have ever involved with an UCC event throughout our sample period as specialized investors in distress debt markets. We examine their stock trading activities around bankruptcy-filing events where no UCC is formed. Our evidence indicates that these specialized hedge funds do not exhibit abnormal stock trading behavior merely due to some firms filing for bankruptcy. These findings are consistent with our argument that it is the UCC information that drives the abnormal stock trading behavior of UCC hedge funds.

Next, we examine whether hedge funds specialized in distressed debt markets tend to exhibit abnormal stock trading activities when an UCC is formed but none of the UCC members are hedge funds. Interestingly, our evidence suggests that these specialized hedge funds do not tend to have high portfolio turnover or large-size trades when facing non-hedge-fund UCC members, and they even seem to avoid trading much or having large-size trades. These results indicate that there is no information leakage from non-hedge-fund UCC members to hedge funds and that these specialized hedge funds are not capable to infer material nonpublic information merely from UCC formation.

Finally, we empirically explore whether non-hedge-fund institutional investors tend to exhibit abnormal stock trading behavior after joining an UCC. Our evidence shows no statistical significance for such activities by non-hedge-funds institutional investors shortly after their UCC appointment, suggesting that non-hedge fund institutional investors are not likely to exploit material nonpublic information for trading cross asset markets. Compared to hedge funds, other institutional investors such as pension funds and mutual funds are required by law to maintain diversified and prudent portfolios and face stricter compliance requirements. Furthermore, hedge fund managers have stronger

incentives to take risks due to their performance fee structures. Combined with our main findings, these results suggest that the abnormal stock trading activities around UCC events concentrate in hedge funds.

To investigate the type of stocks intensely traded by UCC hedge funds, we explore whether a firm traded by hedge funds has an economic linkage with the bankrupt firm. Specifically, we consider whether the traded non-bankrupt firm and the bankrupt firm are in the same Fama-French 12 industries, have customer-supplier relationship, or share similar products as established by Hoberg and Phillips (2010, 2016). We conjecture that UCC information is more relevant and valuable to trading firms that have an economic linkage with the bankruptcy-filing firm. Our results confirm this conjecture and show that large trades by UCC hedge funds are more likely to happen among stocks of nonbankrupt firms that have underlying economic linkage with the bankrupt firm.

In the last set of tests, we investigate how profitable it is for hedge funds to trade upon access to material nonpublic information. Specifically, for each point in time, we form two ad-hoc portfolios from all stock holdings of an UCC hedge fund, namely, the large-trade portfolio and the small-trade portfolio. We first calculate the DGTW-adjusted return for each stock in the large-trade portfolio of each UCC hedge fund, then calculate the value-weighted average across all stock holdings to obtain the DGTW-adjusted return for the large-trade portfolio of each UCC hedge fund at quarter t, and finally have it consolidated into an aggregate large-trade portfolio. That is, we obtain the time series of an ad-hoc aggregated portfolio at the quarterly frequency. We follow the same procedure to aggregate stocks in the small-trade portfolio of each UCC hedge fund. We compare the performances of these two aggregated portfolios over time and consider various horizons from one quarter to six quarters to evaluate performance differentials between the large-

trade and small-trade portfolios.

We find that small trades by UCC hedge funds are unlikely driven by UCC information: The DGTW-adjusted returns for the aggregate small-trade portfolio over all horizons are statistically insignificantly different from zero. More importantly, we find positive differentials between the aggregate large-trade and small-trade portfolios over all horizons. These positive differentials are statistically significantly different from zero when return horizons are around three quarters or longer. Specifically, we find a return differential of more than 1.6% over a 4-quarter investment horizon.

Our paper is closely related to a burgeoning literature examining mechanisms through which hedge funds gain informational advantage in equity trading. Specifically, prior studies show that hedge funds acquire private information via the syndicated loan market (Massoud, Nandy, Saunders, and Song, 2011), private meetings with senior management (Solomon and Soltes, 2015), the Freedom of Information Act (FOIA) requests (Gargano, Rossi, and Wermers, 2017), and connections with lobbyists (Gao and Huang, 2016) and prime brokers (Kumar, Mullally, Ray, and Tang, 2020).

Our study contributes to this literature by identifying a nuanced channel for hedge funds to gain informational advantages: access to material nonpublic information while serving on a bankrupt firm's official unsecured creditors' committee. In addition, our empirical setting focuses on a specific group of hedge funds that specialize in distressed investing, which allows us to compare trading behavior of hedge funds that have access to material nonpublic information and those that access only public information of the same bankrupt firm. We control for hedge fund manager skills and their ability to access other information on the distressed debt markets. To the best of our knowledge, this is the first paper to study whether hedge funds exploit material nonpublic information in

cross-market trading.

Our study also contributes to the literature on the impact of nonbank institutional investors' presence in the debt market and its influence on the equity market (e.g, see Bushman, Smith, and Wittenberg-Moerman (2010), Jiang, Li, and Shao (2010), Ivashina and Sun (2011), Massoud, Nandy, Saunders, and Song (2011), Kumar, Mullally, Ray, and Tang (2020)). Compared to prior studies that primarily focus on institutional investors' trading behavior in debt and equity of the same firm, our paper examines how hedge funds acquire material nonpublic information by holding debt of financially distressed firms and trade in the equity market of non-distressed firms.[4] Our findings highlight an important link from the debt market to the equity market, highlighting "cross-asset" ownership and trading driven by material nonpublic information. This special form of informed trading activities by hedge funds deserves the attention of regulators for considering legally-binding restrictions to ensure market efficiency and integrity in a broad sense.

The rest of this paper proceeds as follows. Section 2 provides institutional background for bankruptcy and UCC. Section 3 describes data sources and sample. Section 4 provides summary statistics, present main results, and conduct a variety of placebo tests and falsification tests, and Section 5 concludes.

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[4]For example, Ivashina and Sun (2011) provide evidence on institutional investors as loan syndicate participants exploiting private information around loan amendments to trade borrowers' equities and obtain abnormal returns. In a similar vein, Massoud, Nandy, Saunders, and Song (2011) examine the involvement of hedge funds as nonbank institutional investors in the syndicated loan market and show that hedge fund lenders take short positions in the equity of borrowers prior to public announcements of loan origination and amendments. While those studies focus on hedge funds holding loans and trading stocks of the same company, we document that hedge funds utilize material nonpublic information obtained from the focal firm (i.e. the bankrupt firm) to trade equities of the other firms (i.e. non-bankrupt firms).

2 Institutional Background

Financially distressed firms in the US can file for bankruptcy protection and reorganize under court supervision. The goal of the bankruptcy process is to have managers, creditors, shareholders, and other related parties to bargain about the future of the firm and the value of the claims they hold or will receive if any (Wang, 2022). To facilitate bargaining, the Bankruptcy Code allows the formation of the official committees represented by unsecured creditors and shareholders, with judge's approval. Specifically, §1102 and §1103 of the code govern the formation, powers, and duties of creditors' and equity security holders' committees. The formation of such committees is managed by the United States Trustee appointed by the Department of Justice, which is responsible for overseeing the administration of bankruptcy cases.

The U.S. Trustee typically conducts a meeting of the creditors (known as §341 meetings) shortly after the Chapter 11 filing, and appoint a committee of creditors holding unsecured claims and may appoint additional committees of other creditors or of equity security holders as the United States Trustee deems appropriate. According to §1102, a committee of unsecured creditors appointed "*shall ordinarily consist of the persons, willing to serve, that hold the seven largest claims against the debtor of the kinds represented on such committee, or of the members of a committee organized by creditors before the commencement of the case..., if such committee was fairly chosen.*" §1103 specifies the powers and duties of committees, which include but not limited to "*investigate the acts, conduct, assets, liabilities, and financial condition of the debtor, the operation of the debtor's business and the desirability of the continuance of such business, and any other matter relevant to the case or to the formulation of a plan.*"

One advantage for members serving on the official unsecured creditors' committee

(UCC) is their access to material nonpublic information with regard to the most recent business plan and financial condition, detailed management projections, contemplated financing alternatives, the timing and the terms of proposed plans of reorganization, and proprietary advisor analyses of the bankrupt company, etc. Such information may concern not only bankrupt firms but also their economically linked firms such as competitors, suppliers, and customers. Hence, the U.S. Securities and Exchange Commission (SEC) has strict rules prohibiting UCC members from trading securities of the bankrupt firm because trading based on access to material nonpublic information can be a violation of the prohibition on insider trading rule of the U.S. federal securities laws.

Debt holders with material nonpublic information may still choose to trade but would need to ensure the counterparty is aware that they have material nonpublic information through the execution of a big-boy letter.[5] However, even with a big-boy letter in place, the "restricted" party could still be litigated.[6] In fact, the SEC has undertaken several enforcement actions against parties that traded debt claims of the bankrupt firm while serving on the UCC. For example, according to SEC Litigation Release on May 30, 2007[7], Barclays Bank PLC and Steven J. Landzberg illegally traded millions of dollars of bond securities based on material nonpublic information received through six bankruptcy creditors' committees. Serving as a member of creditors' committee on behalf of Barclays and a proprietary trader, Landzberg breached fiduciary duties by failing to disclose any of those trades to the creditors committees, issuers, or other sources of such information.

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[5]A big-boy letter is a pre-sale agreement between a security seller and a buyer. It contains two features: non-restricted party (typically the buyer)'s awareness of counterparty (typically the seller)'s possession of nonpublic information, and a waiver of claims that the non-restricted party might otherwise have under securities laws. In other words, the buyer is aware that the seller may possess material nonpublic information of the securities and will not sue over non-disclosure of material nonpublic information.

[6]The enforceability of a big-boy letter is questionable. As Eshmoili (2008) points out that big boy letters occupy a gray area of the law and SEC has never issued any official guidance on big boy letters.

[7]See https://www.sec.gov/litigation/litreleases/2007/lr20132.htm for detail.

Even with big boy letters in place for a few instances, SEC still alleged that Barclays and Landzberg failed to disclose the material nonpublic information received from creditors committees to their bond trading counterparties. Barclays paid $ 10.9 million to settle insider trading charges. Landzberg was permanently enjoined from participation in any creditors committee in any federal bankruptcy proceeding involving an issuer of securities, and paid a civil money penalty of $ 750,000.[8]

Given SEC's strict insider trading rules and precedent cases, it is not surprising that hedge funds may refrain from trading securities of bankrupt firms while serving on the UCC. However, it is not clear whether hedge funds exploit material nonpublic information of the bankrupt firm to profit from stock trading related to nonbankrupt firms. Strictly speaking, such cross-asset and cross-firm trading based on material nonpublic information may serve as evidence of violating the prohibition on insider trading rules but this type of trading activities have been largely overlooked.

3   Data Description

In this section, we provide detailed description on different data sources that we use in this study including Chapter 11 Bankruptcy cases, hedge funds, institutional investors, and firm fundamental information databases. Specifically, we first obtain a list of bankruptcy cases and their characteristics from the Florida-UCLA-LoPucki Bankruptcy Research Database (BRD). Second, we use the Compustat and Capital IQ Databases to retrieve additional

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[8]A more recent piece of anecdotal evidence concerns Daniel Kamensky, founder of the hedge fund company Marble Ridge Capital. He was sentenced to prison due to bankruptcy fraud in 2021. As co-chair of the UCC for the Neiman Marcus Group, Kamensky has fiduciary duties to all unsecured creditors. However, he coerced a rivalry bidder to abandon its higher bid for the preferred shares issued by Neiman Marcus so that his own hedge fund company could obtain those assets at a lower price, but at the cost of all unsecured creditors. According to SEC press release on September 3, 2020, *Kamensky abused his position as a fiduciary to the Neiman Marcus unsecured creditors by secretly working against them.*

firm-level financial information. Third, we collect data on bankruptcy court dockets and notices detailing the appointment of UCC members from the Public Access to Court Electronic Records Database (PACER), supplemented by BankruptcyData.com Database. Finally, we use the Refinitiv Institutional Holdings Database (13F) extract quarterly equity holdings of hedge funds and other institutional investors, and the Lipper TASS Hedge Fund Database (TASS) to acquire information on fund size, flow, and performance.

3.1 Chapter 11 Filings

Our initial bankruptcy sample includes all Chapter 11 bankruptcies filed by large public US firms from 1996 to 2019, retrieved from the Florida-UCLA-LoPucki BRD.[9] All sample firms have book assets of at least $100 million (measured in 1980 constant dollars using the CPI deflator) at the time of the bankruptcy filing, and must have filed at one 10K in the previous three-year period. We obtain the basic information about sample bankrupt firms from BRD, including firm-level financial information such as assets, liabilities, and sales, case-level characteristics such as bankruptcy filing date, duration, and whether a bankruptcy case is pre-negotiated or pre-packaged.[10] We merge our sample of Chapter 11 filers with the Compustat and Capital IQ Databases to retrieve additional firm-level financial information. The resulting dataset contains 880 Chapter 11 cases.

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[9]According to Chapter 11 U.S. Bankruptcy Code §1102, which governing the appointment of creditors' and equity security holders' committees, "Unless the court for cause orders otherwise, a committee of creditors may not be appointed in a small business case or a case under subchapter V of this chapter (i.e., Small Business Debtor Reorganization)." Therefore, we focus on large public bankruptcy cases in order to observe the frequency of hedge fund companies on the Unsecured Creditors' Committee.

[10]Such information is cross-checked with BankruptcyData.com Database whenever possible.

3.2 Members of the UCC

In order to identify hedge funds on the UCC, we obtain a list of UCC members for each sample case from the Bankruptcy court dockets. Particularly, we download the U.S. bankruptcy court dockets of the 880 sample cases from the Public Access to Court Electronic Records Database (PACER). A typical bankruptcy court docket contains a record of negotiation dialogues among the bankruptcy court, the debtor, the claim holders, and other related parties.[11]

We collect information on UCC members in the following two steps. First, we examine whether the U.S. Trustee appointed UCC for each case based on its court docket. Crucial parties, such as the debtor, the official committee of unsecured creditors, and the U.S. Trustee, along with their legal representatives are listed at the beginning of the court docket. We also search for the court order granting the appointment of UCC on the court docket. Second, we extract information on UCC members from disclosure document submitted by the U.S. Trustee to the bankruptcy court to appoint UCC members.[12] We cross-check with BankruptcyData.com Database on UCC members for each case.[13] We record the initial UCC appointment date and the amendment date if any. Our sample contains 612 bankruptcy cases with identifiable UCC members, and 4,062 bankruptcy case-UCC member level observations. Consistent with the U.S. Bankruptcy Code, there

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[11]A ourt docket also contains motions submitted by various parties such as the debtor, the creditors, and other stakeholders of the bankrupt firm, orders granted or denied by the bankruptcy judge, and disclosure statements including Notice of Hearing and Declaration of an individual or entity in support of certain parties.

[12]Figure A 4.1 of Online Appendix illustrates an example of an UCC notice. In this notice, U.S. Trustee William K. Harrington appointed seven members for UCC of the bankrupt company Sun Edison, Inc. on April 29, 2016. A typical UCC notice, as in this case, contains the filing parties, the filing date, and UCC member information, including names, address, and contact information.

[13]It is possible that the UCC membership changes throughout the bankruptcy process as debt ownership changes due to trading. We take snapshots of each UCC formation and its membership. Our focus is on the first UCC formed right after bankruptcy fling to avoid potential biases arising from hedge funds' strategically trading debt claims throughout bankruptcy.

are seven UCC members per bankruptcy case on average.

Following Jiang, Li, and Wang (2012), we use multiple sources including SEC filings, institutions' official websites, and industry directories and publications (e.g., Barron's, Alpha Magazine, and Institutional Investors.) to identify whether an UCC member is a hedge fund. We restrict our definition of hedge fund companies to two types: First, "pure-play" hedge funds as defined in Agarwal, Jiang, Tang, and Yang (2013). Second, investment companies in which the hedge fund division represents their core business. We remove investment arms of full-service banks or mutual fund arms entering the hedge fund business to ensure that the equity holdings of 13F instituitions are informative about the investments made by hedge fund companies.[14] After this step, there are 243 cases with at least one hedge fund serving on the UCC. In Figure 2, we plot the percentage of cases with hedge funds appointed as UCC members over the number of bankruptcy filings, as well as the total sample cases each year from 1996 to 2019. Hedge funds are crucial participants on UCC in Chapter 11 bankruptcy process — on average, 40% of bankruptcy filings have at least one hedge fund serving on UCC of a bankruptcy case over our sample period.

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[14]As shown in Figure A 4.1, D.E. Shaw Composite Holdings, LLC, Advantage Opportunities Fund, LP, and AQR DELTA Master Account, L.P. are classified as hedge funds, whereas BOKF,N.A. is categorized as commercial bank. D.E. Shaw Composite Holdings, LLC is a subsidiary of hedge fund company D. E. Shaw & Co.. Advantage Opportunities Fund, LP is related to Advantage Capital Management, and its SEC filing describes it as a "Pooled Investment Fund". AQR DELTA Master Account, L.P. is a subsidiary of hedge fund company AQR Capital Management. BOKF,N.A. is a subsidiary of BOK Financial Corporation, a financial services holding company, which offers retail and commercial services. It is worth noting that some UCC member names are at the fund-level, while others are those of individuals. For example, OCM Opportunities Fund III, L.P. is associated with Oaktree Capital Management, while Alan Parsow is the general partner at Elkhorn Partners L.P..

3.3 Stock Holdings of Hedge Funds and Other Institutional Investors

We obtain stock holdings data of institutional investors from the Thomson Reuters Institutional Holdings Database (13F) and merge it with our bankruptcy case-UCC member level dataset by name.[15] Institutional investors that hold over $100 million or more in 13F securities are required to disclose quarterly holdings.[16] The 13F filings are aggregated at the institution level, comparable to the level of management companies. We are able to match 1,366 UCC members to 306 unique 13F institutions, and 167 (out of 306) are hedge fund companies.

We augment stock holdings of UCC member hedge funds with fund characteristics, such as fund size, fund flows, and rate of return from the Lipper Hedge Fund Database (TASS). The reporting unit in TASS is usually at the fund level, while a 13F-filing institution is at the management company level. Hence, pairing a 13F institution to hedge funds is often a one-to-multiple match. We track all hedge funds that are managed by the management company of an UCC member, mainly through name and address, supplemented by BrokerCheck website.[17] For multiple hedge fund products corresponding to one 13F institution, we aggregate fund characteristics by weighted AUM. After the above procedures, we find 79 unique hedge fund companies involved in 144 Chapter 11 cases as UCC members.[18] The average fraction of cases with hedge funds on UCC is 20.52%.[19]

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[15]Section A1 of Online Appendix provides a description of the name-matching procedure in detail.

[16]13F securities are mostly exchange-traded equities. For more details about 13F filing, see https://www.sec.gov/divisions/investment/13ffaq.

[17]BrokerCheck is a free tool that is offered by The Financial Industry Regulatory Authority (FINRA) to research the background and experience of financial brokers, advisers and firms. For more details, please visit: https://brokercheck.finra.org/

[18]The matching rate between 13F hedge fund companies and TASS hedge funds is similar to Gao and Huang (2016).

[19]Table A 5.1 of Online Appendix shows the top ten hedge funds involved in Chapter 11 Bankruptcy as UCC members, ranked by the total number of bankruptcy cases a hedge fund company ever appointed as UCC member. Panel A lists the top hedge fund companies as 13F institutions. Panel B presents the most active hedge fund companies in our final sample. We acknowledge that because we require a hedge fund

[Insert Figure 2 Here]

4 Empirical Results

4.1 Summary Statistics

Table 2 presents descriptive statistics of the sample firms with hedge funds as UCC members and hedge fund trading activities. Panel A describes firm-level characteristics of the 144 sample cases with at least one hedge fund on the UCC. The financial information is taken from the last annual reports immediately before bankruptcy filing. The Chapter 11 firms with hedge fund as UCC member have on average $10.9 billion in book assets (median is $1.4 billion). The average (median) leverage ratio is 0.73 (0.64), and the average (median) ratio of secured debt over total liabilities is 0.33 (0.25). About half of the sample cases are filed in Delaware, 65% cases had access to Debtor-in-possession (DIP) financing, and about 30% cases are prepackaged or prenegotiated cases. On average, it takes 483 days for the bankruptcy court to issue an order to close a case after the bankruptcy filing day, and the median is 379 days.

[Insert Table 2 Here]

The average time between the bankruptcy filing date and the date of UCC appointment is 17 days, and the 95th percentile of this time interval is 35 days. The evidence

to file 13F and have a TASS Company ID, it is possible that our study sample mainly captures large equity-oriented hedge fund companies, given that 13F institutions are situational investment managers that hold over $100 million or more in 13(f) securities. Besides, commercial databases have self-reporting biases as in Agarwal, Fos, and Jiang (2013). The largest and the most successful hedge funds often shun publicity. The inclusion of these funds' performance into the data vendor's index, usually value-weighted by AUM, may lead to loss of secrecy and privacy (Lhabitant, 2007). For example, Oaktree Capital Management, as one of the largest alternative investors (It has $164 billion assets under management as of March 31, 2022.) and the most active hedge fund company on UCC, did not report to commercial databases during our sample period. We compare the characteristics of different sub-sample of cases in Online Appendix Table A 5.2.

indicates that the UCC is appointed within just few weeks after Chapter 11 filing in almost all cases. It is important to note that the UCC membership may involved over time as claims trading take place. We find that the U.S. Trustee amended the UCC membership in 42% cases. On average, it takes 284 days from the appointment date of UCC to the amendment date of UCC, and the median is 151 days.

Panel B presents key variables for stock trading activities and other features of hedge funds. In particular, we employ measures of portfolio turnover and trade size to describe how intensely hedge funds trade stocks. Following Agarwal, Gay, and Ling (2014) and Pástor, Stambaugh, and Taylor (2017) (and many others), portfolio turnover is defined as the ratio of the minimum of dollar value of buy transactions and dollar value of sell transactions over assets under management. *High Turnover* is an indicator variable that equals one if the portfolio turnover of a hedge fund is above the annual median of portfolio turnover, and zero otherwise. *Turnover Buy* is the ratio of the dollar value of buy transactions over assets under management. A buy transaction in our setup requires both an increase in the dollar value of holdings in a firm's stocks and an increase in the percentage ownership of the firm. The increases in the dollar value of firm stocks held by a hedge fund are aggregated into the dollar value of all buy transactions for a hedge fund at the quarterly frequency. *High Turnover Buy* is an indicator variable that equals one if the portfolio turnover due to buy transactions is above the annual median, and zero otherwise.

Turnover Sell is the ratio of the dollar value of sell transactions over assets under management. A sell transaction in our setup requires both a decrease in the dollar value of holdings in a firm's stocks and a decrease in the percentage ownership of the firm. The decreases in the dollar value of firm stocks held by a hedge fund are aggregated into the dollar value of all sell transactions for a hedge fund at the quarterly frequency. *High*

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Turnover Sell is an indicator variable that equals one if the portfolio turnover due to sell transactions is above the annual median, and zero otherwise.

$I(LargeTrade)_{j,t}$ represents various measures that are employed to describe whether hedge fund j makes a large trade in year-quarter t. At the fund-stock-year-quarter level, a trade is of large size if the absolute quarterly change in percentage ownership of a firm's stock by a hedge fund exceeds the 95th percentile of whole sample absolute change in percentage ownership. At the fund-year-quarter level, *Large Trade* is an indicator variable that equals one if a hedge fund makes at least one large-sized trade among all portfolio firms, and zero otherwise. *Num. Large Trade* is the total number of large-sized trades a hedge fund makes among all portfolio firms. Indicator variables of high portfolio turnover and large trades by hedge funds are the key outcome variables in most of our regressions.[20] $UCCInformation$ is an indicator variable that equals one for a UCC hedge fund over the next six quarters upon bankruptcy-filing quarter.[21] *UCC Information* is the main explanatory variable in our regressions and has a sample mean of 0.142. $X_{j,t-1}$ is a set of covariates including hedge fund size, flows, and rate of return, all measured at the previous quarter end.

4.2   Arrival of UCC Events

An important identification condition for our main empirical tests is that hedge funds trade large quantity of distressed debt of a portfolio of firms. A bankruptcy filing triggers UCC formation and thus hedge funds' access to information, rather than hedge funds endogenously buying large amount of debt right before or after a bankruptcy fil-

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[20]We use indicator variables of high portfolio turnover because raw measures of portfolio turnover for hedge funds deviate too much from a normal distribution and are severely subject to extreme values.

[21]Observations of UCC hedge funds for the bankruptcy-filing quarter are removed.

ing in order to join the UCC. This assumption is plausible given that UCC is typically formed within few weeks of a Chapter 11 filing and distressed bonds are highly illiquid (Longstaff, Mithal, and Neis, 2005, Chen, Lesmond, and Wei, 2007), making it challenging for a hedge fund to build up a large stake after bankruptcy filing and before UCC is formed. Nonetheless, in this section, we present two pieces of evidence that suggests that UCC arrivals are exogenous to hedge fund trading.

We first verify that the arrival of UCC events for hedge funds cannot be predicted by their characteristics in a statistically significant manner. Specifically, we use assets under management, fund flows, and fund rate of return to predict next-period UCC events. Observations are at the fund level at the quarterly frequency. All independent variables are measured at the previous quarter end. In particular, we employ the following regression equation:

$$I(UCCEvents)_{j,t} = \Phi'X_{j,t-1} + \delta_j + \theta_t + \epsilon_{j,t} \tag{1}$$

where $X_{j,t-1}$ are assets under management, fund flows, and fund rate of return. Fund-fixed effects are included to absorb time-invariant features across hedge funds that may affect their participation in UCC events, and year-quarter-fixed effects are included as well to absorb time-varying factors that may affect all hedge funds in our sample.

[Insert Table 3 Here]

In Table 3, we use alternative measures to describe the arrival of UCC events. *UCC Event* in column (1) is an indicator variable that equals one if a hedge fund has an UCC event within a year-quarter, and zero otherwise. *Multiple UCC* in column (2) is an indicator variable that equals one if a hedge fund has more than one UCC event within a year-quarter, and zero otherwise. Columns (3) and (4) uses the number of UCC events for

a hedge fund within a year-quarter. Overall, all four columns indicate that hedge fund characteristics do not have predictive power over the arrival of UCC events.

Next, we compare characteristics of firms with hedge funds on UCC and those not targeted by hedge funds. Online Appendix Table A 5.2 presents these comparisons. In particular, there is no statistically significant difference between bankrupt cases with at least one sample hedge fund and cases with no sample hedge funds but with at least one 13F hedge fund among all observed dimensions. This alleviates concerns on self-reporting biases in commercial databases. On average, a bankrupt company with sample hedge fund as UCC member has $10.9 billion (median is $1.4 billion) in book assets, whereas firms with no hedge funds as UCC member have $4.1 billion (median is $0.9 billion) in book assets. Despite larger book assets and liabilities than those without hedge fund participation, firms with hedge funds on UCC have comparable sales and number of employees to other firms.

Importantly, we find no statistically significant difference in leverage and operating performance between the two sets of firms, though hedge fund targets have more tangible assets. Consistent with Jiang, Li, and Wang (2012), hedge funds invest in firms with a lower ratio of secured debt to total liabilities. Lower secured debt implies that senior secured debt is more likely to be overcollateralized, and hence it leaves more room for unsecured creditors. In addition, the two groups of firms do not differ in key bankruptcy characteristics including the percentage of prepackaged bankruptcy cases, the fraction of cases filed in Delaware, Debtor-in-Possession (DIP) financing, and bankruptcy duration.

Overall, consistent with prior studies on hedge funds' activism in distressed firms, the evidence suggests that hedge funds target firms where they can have a larger influence in the restructuring process while protecting their investments with more tangible assets.

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Importantly, firms to which hedge funds have information access do not differ in performance, leverage, and many bankruptcy outcomes from those not targeted by hedge funds. The evidence suggests that hedge funds do not strategically target firms with the purpose of information access to facilitate cross-market trading.

4.3   Baseline Results

Table 4 examines stock trading activities by hedge funds when accessing UCC information. UCC is usually formed around two weeks after bankruptcy filing. We argue that hedge funds that are UCC members are highly likely to access UCC information in the next few quarters upon bankruptcy filings. Specifically, we conjecture that UCC hedge funds are more likely to have high portfolio turnover while accessing UCC information. We examine the relation between hedge funds' portfolio turnover and their access to UCC information via the following regression equation:

$$I(HighTurnover)_{j,t} = \beta(UCCInformation)_{j,t} + \Phi'X_{j,t-1} + \delta_j + \theta_t + \epsilon_{j,t} \qquad (2)$$

where $I(HighTurnover)_{j,t}$ represents a set of indicator variables for hedge fund j in quarter t, $UCCInformation$ is an indicator variable that equals one for a hedge fund that joins the UCC for a bankruptcy-filing firm over the next 6 quarters upon bankruptcy-filing quarter, and zero otherwise.[22] $X_{j,t-1}$ is a set of covariates including hedge fund size, flows, and rate of return, all measured at the previous quarter end. Fund-fixed effects are included to absorb fund-specific time-invariant characteristics that may affect hedge funds' stock trading activities. Year-quarter-fixed effects are included to absorb possible

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[22]Observations of UCC hedge funds for the bankruptcy-filing quarter are excluded from our analyses to avoid the implementation effects. It is feasible to assume that UCC hedge funds have not received material nonpublic information during the bankruptcy quarter.

common time trends in trading activities of all hedge funds.

[Insert Table 4 Here]

Various measures are employed to describe whether hedge fund j experiences high portfolio turnover in quarter t. *Turnover* is the ratio of the minimum of dollar value of buy transactions and dollar value of sell transactions over assets under management. *High Turnover* is an indicator variable that equals one if the portfolio turnover of a hedge fund is above the annual median of turnover, and zero otherwise. *Turnover Buy* is the ratio of the dollar value of buy transactions over assets under management. A buy transaction in our setup requires both an increase in the dollar value of holdings in a firm's stocks and an increase in the percentage ownership in the firm from quarter to quarter.[23] The increases in the dollar value of firm stocks held by a hedge fund are aggregated into the dollar value of all buy transactions for a hedge fund at the quarterly frequency. *High Turnover Buy* is an indicator variable that equals one if the portfolio turnover results from buy transactions is above the annual median, and zero otherwise.

Similarly, *Turnover Sell* is the ratio of the dollar value of sell transactions over assets under management. A sell transaction in our setup requires both a decrease in the dollar value of holdings in a firm's stocks and a decrease in the percentage ownership in the firm from quarter to quarter. The decreases in the dollar value of firm stocks held by a hedge fund are aggregated into the dollar value of all sell transactions for a hedge fund at the quarterly frequency. *High Turnover Sell* is an indicator variable that equals one if the portfolio turnover due to sell transactions is above the annual median, and zero otherwise.

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[23]In unreported tables, we follow Ben-David, Franzoni, and Moussawi (2012) to define buy and sale transactions and our main results hold.

Table 4 presents the regression results for the relation between hedge funds' portfolio turnover and access to UCC information. Column (1) does not include any control variables or fixed effects, and we use robust standard errors. t-statistics are reported with coefficients across all columns. Column (2) include control variables and fund- and year-quarter-fixed effects, and we double cluster the standard errors at fund- and year-quarter-levels. We find hedge funds are more likely to exhibit high portfolio turnover when accessing UCC information, and the probability differential is 12.4 percentage points. This number translates to 29% increase in the probability of having high portfolio turnover relative to unconditional mean.[24] The next two columns further explore alternative measures for portfolio turnover, in particular, turnover from buy transactions only and from sell transactions only, respectively. These results are generally consistent with what we find in column (2). These probability differentials are of economic significance as well if compared to the sample mean of these portfolio turnover variables.

Table 5 describes the stock trading patterns of UCC hedge funds from another dimension: making large trades. In this table, we empirically explore whether hedge funds tend to make large trades in response to UCC information using the following specification:

$$I(LargeTrade)_{j,t} = \beta(UCCInformation)_{j,t} + \Phi'X_{j,t-1} + \delta_j + \theta_t + \epsilon_{j,t} \tag{3}$$

where $I(LargeTrade)_{j,t}$ represents various measures that are employed to describe the large trades hedge fund j makes in quarter t. $UCCInformation$ and $X_{j,t-1}$ are the same with Table 4. We define a trade to be of large size if the absolute quarterly change in a hedge fund's percentage ownership in a firm's stock exceeds its whole-sample 95th percentile. For each hedge fund at the quarterly frequency, *Large Trade* is an indicator vari-

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[24]0.124 divided by 0.431.

able that equals one if a hedge fund makes at least one large trade among all its portfolio firms, and zero otherwise. *Num Large Trade* is the total number of large trades a hedge fund makes among all portfolio firms at the quarterly frequency.

[Insert Table 5 Here]

Column (1) in Table 5 shows that the probability differential in making large trades between UCC and non-UCC hedge funds is 13.8 percentage points. Column (1) does not include any control variables or fixed effects, and we use robust standard errors. Column (2) further includes control variables and fund- and year-quarter-fixed effects. We find the probability differential remains positive and statistically significant at the 1% level, and its magnitude shrinks slightly into 11.0 percentage points. The economic significance of these coefficients is substantial if compared to the sample mean of *Large Trade*. To further differentiate between hedge funds making only one large trade and those making multiple large trades, the last two columns of Table 5 employ the number of large trades for a hedge fund as the outcome variable. The last two columns use the Poisson model and show that UCC hedge funds tend to make a greater number of large trades while accessing UCC information.

To sum up, we find while accessing UCC information, UCC hedge funds are more likely to have high portfolio turnover, are more likely to make large trades, and they tend to make a greater number of large trades.

4.4   Additional Tests

One may be concerned that the empirical setup of our baseline results subtly combines two connected "events": UCC hedge funds not only have access to UCC information

but also observe the public information released upon the bankruptcy-filing event.[25] In particular, one may question which of these two events, bankruptcy or UCC, is essentially driving our results. We conduct additional analyses to explore whether it is their access to UCC information or their ability to process public information that drives hedge funds to trade more and make large trades.[26] We first focus on bankruptcy-filing cases where no UCC is formed. Specifically, we run the following regression:

$$I(TradingOutcome)_{j,t} = \beta(PseudoUCC)_{j,t} + \Phi'X_{j,t-1} + \delta_j + \theta_t + \epsilon_{j,t} \qquad (4)$$

where $PseudoUCC$ is an indicator variable that represents the occurrence of bankruptcy-filing but without any UCC being formed. If the results in Tables 4 and 5 are not driven by UCC information but driven by the bankruptcy-filing cases per se, then we should expect to observe a higher probability for hedge funds to have high portfolio turnover and make large trades upon bankruptcy-filing with no UCC being formed. However, Table 6 shows that this is not the case. We observe no abnormal stock trading activities by hedge funds upon announcing bankruptcy-filing cases with no UCC being formed. This finding is consistent across all columns.

[Insert Table 6 Here]

Another perspective to re-examine our results in Tables 4 and 5 is on the "attention-grabbing" effects of public information: bankruptcy-filing events and UCC formation. That is, we need to confirm that our main results are not driven by hedge funds' abnormal

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[25]On the first day of Chapter 11 filing, a large amount of information about the bankrupt firm is released through court filings. Such information includes identities of the largest unsecured debt holders, terms of DIP financing, retention of professionals, and testimonials made by financial advisors, etc.

[26]13F institutional investors have been documented to make profitable trades regarding public information releases in Ke and Ramalingegowda (2005), Bushee and Goodman (2007), and many others.

attention to the arrivals of such public information.[27] One approach is to zoom in on bankruptcy cases where UCC is formed but no hedge funds are UCC members. That is, we empirically explore how hedge funds may "react", in terms of stock trading activities, to bankruptcy-filing cases with non-hedge-fund UCC members having access to UCC information. We conjecture the absence of hedge funds being more likely to have high portfolio turnover and make large trades.

We empirically explore the stock trading behavior of hedge funds upon UCC events where no UCC members are hedge funds using the following specification:

$$I(TradingOutcome)_{j,t} = \beta(Non-HFUCC)_{j,t} + \Phi'X_{j,t-1} + \delta_j + \theta_t + \epsilon_{j,t} \qquad (5)$$

where $Non-HFUCC$ is an indicator variable that equals one for the bankruptcy-filing quarters where no hedge funds are UCC members and non-hedge-fund investors are UCC members. Table 7 presents the results that confirm such absence. The evidence does not indicate that hedge funds being more likely to have high portfolio turnover and make large trades. Interestingly, some weak evidence in columns (2), (4), and (5) indicates that hedge funds may even avoid having high portfolio turnover or making large trade when they know that non-hedge-fund UCC members have access to UCC information. That is, hedge funds may intentionally avoid trading when they know other 13f institutional investors may possess superior information.

[Insert Table 7 Here]

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[27]The arrival of public information may attract institutional investors' attention and affect their trading and eventually share price patterns. For example, Hirshleifer, Lim, and Teoh (2009) find that investor attention to the focal firm's earnings news is reduced when a greater number of other firms are announcing their earnings on the same day. Kempf, Manconi, and Spalt (2017) argue that industry-wide abnormal returns will cause shareholder attention temporarily shifted away from the focal firm. They find that firms facing distracted institutional shareholders are more likely to announce value-destroying acquisitions and cut dividends, and less likely to fire CEO due to poor performance.

Following the empirical setup in Table 7, one may wonder whether these non-hedge-fund UCC members, for example mutual funds, may exhibit abnormal stock trading activities.[28] We focus on non-hedge-fund 13F institutional investors upon joining UCC of the bankruptcy-filing firm in Table 8. We do not find such 13F institutional investors to be more likely to have high portfolio turnover or make large trades while having access to UCC information. The absence of abnormal stock trading activities by non-hedge-fund 13F institutional investors may not be surprising for the following reasons.

First, traditional 13F institutional investors may not have the skills or instruments to exploit their UCC information by intensely trading other firms' stocks. Second, those institutions face much tighter restrictions and regulations than hedge funds and thus face stricter scrutiny by regulators. For example, mutual funds, by regulation, would need to maintain a well-diversified portfolio. Last, those non-hedge-fund institutional investors do not have strong incentives to trade intensely upon such information due to their pay for performance structure, compared to hedge funds managers who face high-powered incentive structures to deliver outperformance.

[Insert Table 8 Here]

4.5 Economic Linkage

So far, we have argued that UCC hedge funds exhibit abnormal stock trading activities upon joining UCC. However, little is known on what stocks are being traded based on UCC information and what economic linkage they could have with the bankruptcy-filing firm. Motivated by prior literature examining the spillover effects of financial distress[29],

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[28] Actively managed equity mutual funds have been documented to have skills to time the aggregate market and pick individual stocks in Kacperczyk, Van Nieuwerburgh, and Veldkamp (2014, 2016).

[29] Early work from Lang and Stulz (1992) document both contagion effect (negative price reaction) and competitive effect (positive price reaction) on equities of rivalry firms in the same industry as the bankrupt

we study what stocks UCC hedge funds intensively trade while having access to UCC information using the following specification:

$$I(LargeTrade)_{i,j,t} = \beta(EconLink)_{i,j,t} + \delta_{i,t} + \theta_{j,t} + \epsilon_{i,j,t} \tag{6}$$

Large Trade in this section is defined at the stock-fund level at the quarterly frequency that is equal to one if the absolute value of the quarterly change in a fund's percentage ownership in a stock ranks in the top 5 percentile for the whole sample (i.e. greater than or equal to the 95th percentile), and zero otherwise.

Econ Link FF12Ind is an indicator variable that equals one if a portfolio firm of an UCC hedge fund is within the same Fama-French 12 Industry with the bankruptcy-filing firm. *Econ Link Universal* is an indicator variable that equals one if a portfolio firm of an UCC hedge fund has one of the following three types of economic linkage with the bankruptcy-filing firm: Within the same Fama-French 12 Industry; having supplier-big-customer relationship for the current year or any of the previous three years; having similar product descriptions and therefore within the same industry classification as established in Hoberg and Phillips (2010, 2016).

[Insert Table 9 Here]

firm upon bankruptcy announcements. Depending on the level of industry concentration and industry leverage ratio, rivalry firms' stock react differently to bankruptcy announcements. Broadening the scope of related parties with distressed firms, Hertzel, Li, Officer, and Rodgers (2008) provide new evidence that suppliers of distressed firms experience significantly negative abnormal returns around both of the bankruptcy filing date and the pre-filing distress date. James and Kizilaslan (2014) find that a firm's exposure to industry downturns affects its probability of becoming financially distressed and its debt recovery rate in bankruptcy, suggesting that industry-wide financial distress is contagious and its influence on individual firm varies by risk exposure. A recent study on bankruptcy spillovers is from Bernstein, Colonnelli, Giroud, and Iverson (2019) providing evidence that the liquidation of bankrupt establishments causes reduction in local employment and business establishments compared with reorganized establishments.Their findings are consistent with the notion that bankruptcy liquidations disrupt agglomeration complementarities in the local economy. From a different lens, our paper finds that sophisticated institutional investors exploit the spillovers of financial distress and make informed trades accordingly.

Column (1) in Table 9 shows that UCC hedge funds are more likely to make large trades among firms within the same Fama-French 12 industry with the bankruptcy-filing firm. The probability differential is 0.96 percentage points and statistically significant at the 1% level. Column (2) extends the definition of economic linkage and shows that UCC hedge funds are more likely to make large trades among firms with underlying economic linkage with the bankruptcy-filing firm by 1.02 percentage points. This probability differential is not only statistically significant at the 1% level but economically meaningful as well if compared to the sample mean of *Large Trade*, 5.42 percentage points. In the next four columns, we further define indicator variables of large trade by transaction directions: buy or sell. The evidence suggests that the results in the first two columns are actually driven by large trades of both buy and sell transactions. Overall, the evidence indicates that our baseline results are well-justified: Large trades are more likely to happen among firms to which UCC information is more relevant and useful via underlying economic linkage.

4.6 Profitability of Large Trades by UCC Hedge Funds

Our baseline results show that UCC hedge funds are more likely to have high portfolio turnover, more likely to make large trades and tend to make a greater number of large trades. So far, however, it is not clear how profitable it is to trade upon access to UCC information. This section compares the performances of two ad-hoc portfolios by UCC hedge funds that are consistent with the empirical setup for our baseline results.

We define a hedge fund that is an UCC member for a bankruptcy-filing firm as an UCC hedge fund in six quarters after the bankruptcy-filing quarter. Among all stock holdings of an UCC hedge fund, we form two ad-hoc portfolios, namely, the large-trade

portfolio and the small-trade portfolio. The large-trade portfolio consists of stocks that have experienced intensive trading by the UCC hedge fund: The absolute value of the quarterly change in the UCC hedge fund's percentage ownership in the stock is greater than or equal to its 95th percentile).

We first calculate the DGTW-adjusted return for each stock in the large-trade portfolio of each UCC hedge fund at the quarterly frequency, and then calculate the value-weighted average to obtain a portfolio-level DGTW-adjusted return.[30] Then, we compile the large-trade portfolio of each UCC hedge fund at quarter t into an aggregate large-trade portfolio and obtain the value-weighted average of portfolio-level DGTW-adjusted returns. We compare the performance of this aggregate large-trade portfolio with that of a similarly constructed aggregate small-trade portfolio over time. We consider various horizons from one quarter to six quarters to evaluate performance differentials between the large-trade and small-trade portfolios.

[Insert Table 10 Here]

In Table 10, we find that the DGTW-adjusted returns for the aggregate small-trade portfolio over all horizons are statistically insignificantly different from zero. This indicates that even UCC hedge funds do not generate positive returns in the small trades they make. Most importantly, we compare the performance differential between the aggregate large-trade and small-trade portfolios and find positive differentials over all horizons. The positive differentials are statistically significantly different from zero when return horizons are two quarters or longer. These differentials are essentially the returns for a long-short strategy where an investor may take a short position in the aggregate small-

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[30]See Daniel, Grinblatt, Titman, and Wermers (1997) for how to construct characteristics adjusted portfolio returns.

trade portfolio and a long position in the aggregate large-trade portfolio.[31]

5 Concluding Remarks

This paper empirically examines whether hedge funds exploit a special source of material nonpublic information as debt-claim holders for bankruptcy-filing firms. Specifically, we document abnormal stock trading activities upon hedge funds joining unsecured creditors' committee for bankruptcy-filing firms. We find UCC hedge funds are more likely to have high portfolio turnover and make large trades. We have conducted a number of checks to mitigate concerns that such abnormal stock trading activities by UCC hedge funds may be driven by the release of public information. We also find that UCC hedge funds are more likely to make informed trades among firms with underlying economic linkage with the bankruptcy-filing firms. Overall, our findings jointly suggest that hedge funds utilize material nonpublic information obtained from the distressed debt markets to trade stocks. We bring this special form of informed trading across debt and equity assets into discussions with regulators and practitioners to ensure market integrity in a broad sense.

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[31]When comparing these two aggregate portfolios, we essentially construct a rule-based strategy that passively observes what the UCC hedge funds holds and incorporates no further information for portfolio management purposes.

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Figure 1: **Cumulative Returns to Distress Hedge Fund and Other Indices**

This figure plots the Credit Suisse Distress Hedge Fund Index from January 1994 to July 2022. As a comparison, also plotted are the Credit Suisse Event Driven Hedge Fund Index, the Credit Suisse All Hedge Fund Index, and the Credit Suisse Risk Arbitrage Index. All hedge fund indices are from the Lipper Hedge Fund Database (TASS).
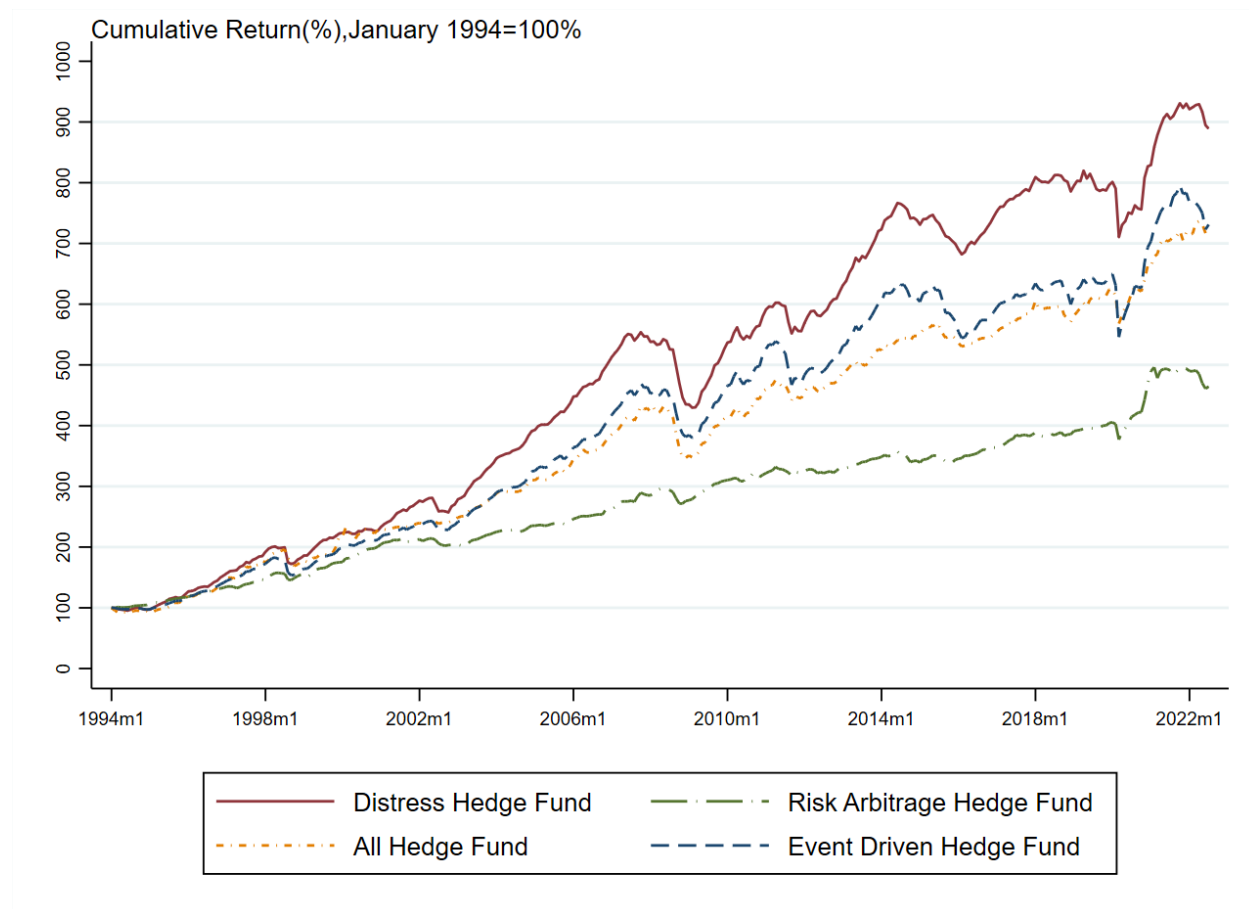
Figure 2: **Hedge Funds on Unsecured Creditors' Committee**

This figure presents the time series of Chapter 11 bankruptcy cases from 1996 to 2019. These cases include bankrupt firms with assets equal to or greater than $100 million (measured in 1980 constant dollars using the CPI deflator) at the time of bankruptcy, have filed 10Ks in the previous three-year period, and have appointed the official committee of unsecured creditors. The left y-axis represents the number of bankruptcy filings, and the right y-axis shows the percentage of cases with hedge funds as members of unsecured creditors' committee over total sample cases each year.
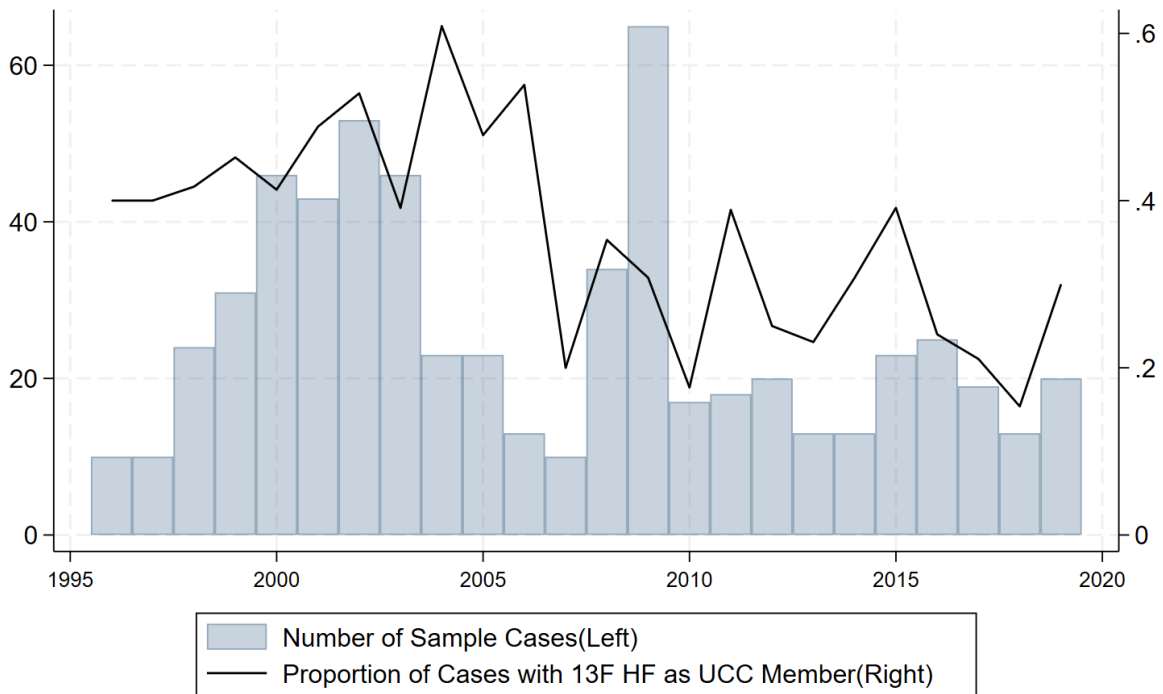
Table 1: **Key Variable Definitions**

This table presents definitions for key variables in this study. Data sources for bankruptcy cases and bankrupt firm characteristics are from the Florida-UCLA-LoPucki Bankruptcy Research Database (BRD), supplemented by the Compustat, Capital IQ, and BankruptcyData.com. Bankruptcy court dockets and notices of the appointment of Unsecured Creditors' Committee are obtained from the Public Access To Court Electronic Records Database (PACER). Data sources for trading information of hedge funds and other institutional investors are from the Thomson Reuters Institutional Holdings Database (13F) and the Lipper Hedge Fund Database (TASS).

Variable	Definition and Construction
A. Bankruptcy Characteristics	
Delaware	Dummy variable indicating whether the firm files bankruptcy in Delaware.
DIP	Dummy variable indicating whether the firm obtains debtor-in-possession financing.
Prepack	Dummy variable indicating whether the bankruptcy filing is prepackaged or pre-negotiated.
Amendment	Dummy variable indicating whether there is an order approving the amendment of the official unsecured creditors' committee.
Duration	The number of months between bankruptcy filing date and the date on which the bankruptcy court entered its order approving the plan of reorganization, the dismissal of the case, or the conversion of the case to Chapter 7.
Days BKUCC	The number of days between bankruptcy filing date and the date on which the U.S. Trustee appointed the official committee of unsecured creditors.
Days BKAUCC	The number of days between bankruptcy filing date and the date on which the U.S. Trustee amended the official committee of unsecured creditors.
Days UCCAUCC	The number of days between the date on which the U.S. Trustee appointed the official committee of unsecured creditors and the date on which the U.S. Trustee amended the official committee of unsecured creditors.
Event UCC	Dummy variable that is equal to one when the U.S. Trustee appoint an Unsecured Creditors' Committee (UCC) for a hedge fund-year-quarter observation, and zero otherwise.
Multiple UCC	Dummy variable that is equal to one if there is strictly more than one UCC event for a hedge fund-year-quarter observation, and zero otherwise.
Num UCC	The number of UCC events for a hedge fund-year-quarter observation, starting from zero.
UCC Information	Dummy variable indicating whether a hedge fund has access to UCC information.

Table 1: **Key Variable Definitions (Continued)**

Variable	Definition and Construction
BK-No UCC	Dummy variable indicating whether there is a bankruptcy filing but no UCC is appointed for a hedge fund-year-quarter observation.
Non-HF UCC	Dummy variable indicating whether there is an UCC event but no hedge fund serves as UCC member for a hedge fund-year-quarter observation.
Econ Link FF12Ind	Dummy variable which is equal to one for stocks of the non-bankrupt firm in the portfolio of UCC hedge fund when the corresponding bankrupt firm is in the same Fama-French 12 industry as the non-bankrupt firm.
Econ Link Universal	Dummy variable indicating whether there is an economic linkage between a bankrupt firm and a non-bankrupt firm. Firms with economic linkage with a bankrupt firm includes non-bankrupt firms that are customers or suppliers of the bankrupt company, operate in the same Fama-French 12 industry as the bankrupt company, or has the same Text-based Network Industry Classifications (TNIC) (Hoberg and Phillips, 2010, 2016).
B. Trading Variables	
Fund Size	Assets Under Management (AUM) of each fund product aggregated to the fund company level, in millions. Lag fund size equals the natural log of one plus fund size at the prior quarter-end.
Fund Flows	Change in Assets Under Management (AUM) net of changes due to return, scaled by last-period Assets Under Management (AUM).
Fund Return	The weighted average of return rate of each fund product aggregated to the fund company level, in percentage. AUM is the weight.
High Turnover	Dummy variable that is equal to one if portfolio turnover is greater than median each year, and zero otherwise. Turnover is defined as the smaller of buy transactions and sell transactions, both in dollar amount, scaled by Assets Under Management (AUM).
High Turnover Buy	Dummy variable that is equal to one if portfolio turnover is greater than median each year, and zero otherwise. Turnover Buy is the buy transactions in dollar amount scaled by Assets Under Management (AUM).
High Turnover Sell	Dummy variable that is equal to one if portfolio turnover is greater than median each year, and zero otherwise. Turnover is the sell transactions in dollar amount scaled by Assets Under Management (AUM).
Large Trade	Dummy variable that is equal to one if a hedge fund company has made at least one large trade during a quarter, and zero otherwise. Large trade is defined as a trade that is above the 95 percentile of trade size across the whole sample. Trade size is measured as the absolute change in investor j's percentage ownership in stock i.
Num Large Trade	The number of large trades for a hedge fund within a quarter, starting from zero.

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Table 1: **Key Variable Definitions (Continued)**

Variable	Definition and Construction
C. Firm Charasteristics	
Assets	Total assets from the last 10-K filed before bankruptcy, in millions of constant 2019 dollars.
Liabilities	Total liabilities from the last 10-K filed before bankruptcy, in millions of constant 2019 dollars.
Sales	Sales from the last 10-K filed before bankruptcy, in millions of constant 2019 dollars.
Employees	The number of persons employed by the firm as of the last 10-K before bankruptcy filing.
ROA	Ratio of the earnings before interest, taxes, depreciation, and amortization over total assets.
Tangibility	Ratio of total property, plant, and equity over total assets.
Leverage	Ratio of total liabilities over total assets.
Secured debt/Liabilities	Ratio of total secured debt over total liabilities.

Table 2: **Summary Statistics**

This table presents descriptive statistics of sample firms and hedge fund trading activities. Panel A provides a summary of firm characteristics of bankrupt firms with at least one hedge fund on the Unsecured Creditors' Committee in the latest fiscal year before filing bankruptcy. For each variable, we report mean, standard deviation, fifth percentile, 25th percentile, median, 75th percentile, and 95th percentile. Panel B summarizes hedge fund characteristics and stock trading activities at the hedge fund-year-quarter level. For each variable, the mean, the standard deviation, 5th percentile, 25th percentile, median, 75th percentile, and 95th percentile are reported. The sample firms are defined in section 3. Continuous financial variables are winsorized at the 1% and 99% levels to remove outliers. Detailed variable definitions can be found in Table 1.

Panel A. Firm Characteristics

	N	Mean	SD	P5	P25	Median	P75	P95
Size:								
Assets	144	10,921	69,834	356	646	1,375	3,728	18,511
Liabilities	144	10,114	66,666	315	579	1,342	3,519	21,967
Sales	143	2,853	7,630	102	502	925	2,436	11,032
Employees	143	8,155	12,550	144	1,650	3,400	8,500	33,500
Performance:								
ROA	134	0.007	0.243	-0.372	-0.015	0.048	0.096	0.208
Tangibility	135	0.416	0.316	0.013	0.177	0.384	0.638	0.859
Leverage	137	0.729	0.557	0.254	0.453	0.636	0.833	1.593
Secured debt/Liabilities	116	0.334	0.449	0.000	0.068	0.246	0.416	0.906
Bankruptcy Characteristics:								
Delaware	144	0.444	-	0	0	0	1	1
DIP	144	0.646	-	0	0	1	1	1
Prepack	144	0.292	-	0	0	0	1	1
Amendment	144	0.417	-	0	0	0	1	1
Duration	144	483	485	87	197	379	578	1177
Days BKUCC	141	17	29	6	9	14	16	35
Days BKAUCC	60	303	404	20	70	173	340	1154
Days UCCAUCC	60	284	404	2	55	151	317	1140

Table 2: **Summary Statistics (Continued)**

Panel B. Stock Trading Activities and Characteristics: Hedge Funds

	N	Mean	SD	P5	P25	Median	P75	P95
High Turnover	3185	0.431	0.495	0	0	0	1	1
High Turnover Buy	3185	0.452	0.498	0	0	0	1	1
High Turnover Sell	3185	0.445	0.497	0	0	0	1	1
Large Trade	3185	0.573	0.495	0	0	1	1	1
Num Large Trade	3185	26	66	0	0	3	23	125
UCC Information	3185	0.142	0.349	0	0	0	0	1
Lag HF Size	3123	19.267	1.918	16.033	17.869	19.388	20.698	22.138
Lag HF Flow	3099	-0.612	4.356	-5.375	-1.832	-0.765	0.416	4.242
Lag HF Return Rate	3123	0.799	3.369	-3.900	-0.300	0.813	1.890	5.490
Event UCC	3185	0.031	0.174	0	0	0	0	0
Multiple UCC	3185	0.003	0.053	0	0	0	0	0
Num UCC	3185	0.035	0.205	0	0	0	0	0

Table 3: **Arrivals of UCC Events**

This table examines the determinants of UCC events. The analysis is performed using the following specification:

$$I(UCCEvents)_{j,t} = \Phi' X_{j,t-1} + \delta_j + \theta_t + \epsilon_{j,t}$$

Summary statistics are provided in Panel B of Table 2. $I(UCCEvents)_{j,t}$ represents various measures to describe the arrivals of UCC events across the columns. *Event UCC* is an indicator variable that equals one if a hedge fund is appointed as an UCC member within a year-quarter, and zero otherwise. *Multiple UCC* is an indicator variable that equals one if a hedge fund has more than one UCC event within a year-quarter, and zero otherwise. *Num UCC* captures the number of UCC events for a hedge fund within a year-quarter. Fund level controls $X_{j,t-1}$ include assets under management, fund flows, and rate of return. All explanatory variables are measured at the previous quarter end. All variables are defined in Table 1. In the first three columns, coefficients are estimated using ordinary least squares (OLS). Column (4) uses the Poisson model. Fund-fixed effects and year-quarter-fixed effects are included in all columns. Standard errors are double-clustered at the fund- and year-quarter-level, and *t*-statistics or *z*-statistics are reported with coefficients. ***, **, and * stand for statistical significance at the 1%, 5%, and 10% level, respectively.

	(1) Event UCC	(2) Multiple UCC	(3) Num UCC	(4) Num UCC
Lag HF Size	0.002	0.001	0.003	0.060
	(0.548)	(0.401)	(0.559)	(0.347)
Lag HF Flows	0.000	0.000	0.000	-0.017
	(-0.985)	(-0.397)	(-0.959)	(-0.106)
Lag HF Return Rate	0.000	0.000	0.000	0.008
	(-0.340)	(0.045)	(-0.046)	(0.045)
Fund FE	Y	Y	Y	Y
YQ FE	Y	Y	Y	Y
N Obs	3,097	3,097	3,097	3,099
Pseudo R^2	-	-	-	0.335
Adj. R^2	0.042	0.017	0.045	-

Table 4: **Hedge Fund Trading upon UCC Events — High Turnover**

This table examines the relation between hedge funds' access to UCC information and their portfolio turnover using the following specification:

$$I(HighTurnover)_{j,t} = \beta(UCCInformation)_{j,t} + \Phi'X_{j,t-1} + \delta_j + \theta_t + \epsilon_{j,t}$$

Summary statistics are provided in Panel B of Table 2. Various measures are employed to describe whether hedge fund j experiences high portfolio turnover in year-quarter t. $I(HighTurnover)_{j,t}$ represents a set of indicator variables for hedge fund j in year-quarter t. *Turnover* is the ratio of the minimum of dollar value of buy transactions and dollar value of sell transactions over assets under management. *High Turnover* is an indicator variable that equals one if the portfolio turnover of a hedge fund is above the annual median of portfolio turnover, and zero otherwise. *Turnover Buy* is the ratio of the dollar value of buy transactions over assets under management. A buy transaction in our setup requires both an increase in the dollar value of holdings in a firm's stocks and an increase in the percentage ownership of the firm. The increases in the dollar value of firm stocks held by a hedge fund are aggregated into the dollar value of all buy transactions for a hedge fund at the quarterly frequency. *High Turnover Buy* is an indicator variable that equals one if the portfolio turnover due to buy transactions is above the annual median, and zero otherwise. *Turnover Sell* is the ratio of the dollar value of sell transactions over assets under management. A sell transaction in our setup requires both a decrease in the dollar value of holdings in a firm's stocks and a decrease in the percentage ownership of the firm. The decreases in the dollar value of firm stocks held by a hedge fund are aggregated into the dollar value of all sell transactions for a hedge fund at the quarterly frequency. *High Turnover Sell* is an indicator variable that equals one if the portfolio turnover due to sell transactions is above the annual median, and zero otherwise. $UCCInformation$ is an indicator variable that equals one for a UCC hedge fund over the next six quarters upon the bankruptcy-filing quarter. Observations of UCC hedge funds for the bankruptcy-filing quarter are removed. $X_{j,t-1}$ is a set of covariates including hedge fund size, flows, and rate of return, all measured at the previous quarter end. All variables are defined in Table 1. Fund-fixed effects and year-quarter-fixed effects are included to absorb fund-specific time-invariant characteristics and aggregate time trends in hedge funds' stock trading activities. Column (1) uses robust standard errors. Standard errors are double-clustered at the fund- and year-quarter-level for columns (2) - (4), and t-statistics are reported with coefficients across all columns. ***, **, and * stand for statistical significance at the 1%, 5%, and 10% level, respectively.

	(1) High Turnover	(2) High Turnover	(3) High Turnover Buy	(4) High Turnover Sell
UCC Information	0.146***	0.124***	0.119***	0.126***
	(5.783)	(3.556)	(3.745)	(3.969)
Covariates	N	Y	Y	Y
Fund FE	N	Y	Y	Y
YQ FE	N	Y	Y	Y
N Obs	3,185	3,097	3,097	3,097
Adj. R^2	0.010	0.467	0.455	0.449

Table 5: **Hedge Fund Trading upon UCC Events — Large Trade**

This table examines the probability of making large-sized trades of hedge funds in response to UCC information using the following specification:

$$I(LargeTrade)_{j,t} = \beta(UCCInformation)_{j,t} + \Phi' X_{j,t-1} + \delta_j + \theta_t + \epsilon_{j,t}$$

Summary statistics are provided in Panel B of Table 2. $I(LargeTrade)_{j,t}$ represents various measures that are employed to describe whether a hedge fund company j makes a large trade in year-quarter t. At the fund-stock-year-quarter level, a trade is of large size if the absolute quarterly change in percentage ownership of a firm's stock by a hedge fund exceeds the 95th percentile of whole sample absolute change in percentage ownership. At the fund-year-quarter level, *Large Trade* is an indicator variable that equals one if a hedge fund makes at least one large-sized trade among all portfolio firms, and zero otherwise. *Num Large Trade* is the total number of large-sized trades a hedge fund makes among all portfolio firms. $UCCInformation$ is an indicator variable that equals one for a hedge fund that joins the UCC for a bankruptcy-filing firm over the next six quarters upon the bankruptcy-filing quarter. The fund-year-quarter observations for the bankruptcy-filing quarter are removed. Covariates $X_{j,t-1}$ include hedge fund size, flows, and rate of return, all measured at the previous quarter end. All variables are defined in Table 1. Columns (1) and (2) are estimated using ordinary least squares (OLS). Columns (3) and (4) use the Poisson model. Fund-fixed effects and year-quarter-fixed effects are included to absorb fund company-specific time-invariant characteristics and time trends in hedge fund trading activities. Standard errors are double-clustered at the fund- and year-quarter-level, and t-statistics or z-statistics are reported with coefficients. ***, **, and * stand for statistical significance at the 1%, 5%, and 10% level, respectively.

	(1) Large Trade	(2) Large Trade	(3) Num Large Trade	(4) Num Large Trade
UCC Information	0.138***	0.110***	0.453***	0.267***
	(5.799)	(3.009)	(3.264)	(4.238)
Covariates	N	Y	N	Y
Fund FE	N	Y	N	Y
YQ FE	N	Y	N	Y
N Obs	3,185	3,097	3,185	3,099
Pseudo R^2	-	-	0.010	0.805
Adj. R^2	0.009	0.549	-	-

Table 6: Hedge Fund Trading around Bankruptcies without UCC Appointment

This table examines whether hedge funds appointed as UCC members (UCC hedge funds) trade on public information of bankrupt firms using the following specification:

$$I(TradingOutcome)_{j,t} = \beta(PseudoUCC)_{j,t} + \Phi'X_{j,t-1} + \delta_j + \theta_t + \epsilon_{j,t}$$

Various measures are employed to describe the trading activities of hedge fund j as employed in the previous tables, namely, $HighTurnover$, $HighTurnoverBuy$, $HighTurnoverSell$, $LargeTrade$ and $NumLargeTrade$. We empirically explore the stock trading activities of sample hedge funds (distressed hedge funds) after bankruptcy filing but no UCCs are formed. That is, $PseudoUCC$ presents $BK - NoUCC$. Covariates $X_{j,t-1}$ include hedge fund size, flows, and rate of return, all measured at the previous quarter end. All variables are defined in Table 1. Coefficients in the first four columns are estimated using ordinary least squares (OLS). Column (5) uses the Poisson model. Fund-fixed effects and year-fixed effects are included across all columns. Standard errors are double-clustered at the fund- and year-level, and t-statistics or z-statistics are reported with coefficients. ***, **, and * stand for statistical significance at the 1%, 5%, and 10% level, respectively.

	(1) High Turnover	(2) High Turnover Buy	(3) High Turnover Sell	(4) Large Trade	(5) Num Large Trade
BK - No UCC	-0.011	0.023	0.004	0.000	-0.006
	(-0.878)	(1.366)	(0.282)	(-0.001)	(-0.176)
Covariates	Y	Y	Y	Y	Y
Fund FE	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y
N Obs	3,097	3,097	3,097	3,097	3,099
Pseudo R^2	-	-	-	-	0.798
Adj. R^2	0.470	0.456	0.451	0.552	-

Table 7: **UCC Events with No Hedge Funds as UCC Members**

This table examines the stock trading behavior of hedge funds upon UCC events where no UCC members are hedge funds using the following specification:

$$I(TradingOutcome)_{j,t} = \beta(Non - HFUCC)_{j,t} + \Phi'X_{j,t-1} + \delta_j + \theta_t + \epsilon_{j,t}$$

Various measures are employed to describe the trading activities of hedge fund j as employed in the previous tables, namely, $HighTurnover$, $HighTurnoverBuy$, $HighTurnoverSell$, $LargeTrade$ and $NumLargeTrade$. $Non - HFUCC$ is an indicator variable that equals one for the bankruptcy-filing quarters where no hedge funds are UCC members but non-hedge-fund investors are UCC members. Covariates $X_{j,t-1}$ include hedge fund size, flows, and rate of return, all measured at the previous quarter end. All variables are defined in Table 1. Coefficients in the first four columns are estimated using ordinary least squares (OLS). Column (5) uses the Poisson model. Fund-fixed effects and year-fixed effects are included across all columns. Standard errors are double-clustered at the fund- and year-level, and t-statistics or z-statistics are reported with coefficients. ***, **, and * stand for statistical significance at the 1%, 5%, and 10% level, respectively.

	(1) High Turnover	(2) High Turnover Buy	(3) High Turnover Sell	(4) Large Trade	(5) Num Large Trade
Non-HF UCC	0.013	-0.044	0.005	-0.039***	-0.086
	(1.009)	(-1.413)	(0.211)	(-3.010)	(-1.586)
Covariates	Y	Y	Y	Y	Y
Fund FE	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y
N Obs	3,097	3,097	3,097	3,097	3,099
Pseudo R^2	-	-	-	-	0.798
Adj. R^2	0.470	0.456	0.451	0.552	-

Table 8: Other Institutions Trading upon UCC Events

This table explores the stock trading activities of non-hedge-fund institutional investors upon joining UCC of the bankruptcy-filing firm using the same specifications as Tables 4 and 5:

$$I(TradingOutcome)_{j,t} = \beta(UCCInformation)_{j,t} + \Phi'X_{j,t-1} + \delta_j + \theta_t + \epsilon_{j,t}$$

Various measures are employed to describe the trading activities of non-hedge-fund institutional investor j as employed in the previous tables, namely, $HighTurnover$, $HighTurnoverBuy$, $HighTurnoverSell$, $LargeTrade$ and $NumLargeTrade$. *UCC Information* is an indicator variable that equals one for a hedge fund that joins the UCC for a bankruptcy-filing firm over the next six quarters upon the bankruptcy-filing quarter. We control for the market value of all stocks in a 13F institutional investor's portfolio. All variables are defined in Table 1. Coefficients in the first four columns are estimated using ordinary least squares (OLS). Column (5) uses the Poisson model. Fund-fixed effects and year-fixed effects are included across all columns. Standard errors are double-clustered at the fund- and year-level, and t-statistics or z-statistics are reported with coefficients. ***, **, and * stand for statistical significance at the 1%, 5%, and 10% level, respectively.

	(1) High Turnover	(2) High Turnover Buy	(3) High Turnover Sell	(4) Large Trade	(5) Num Large Trade
UCC Information	0.019	0.012	0.016	-0.018	0.041
	(0.863)	(0.552)	(0.871)	(-1.242)	(1.275)
Covariates	Y	Y	Y	Y	Y
Fund FE	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y
N Obs	8,888	8,888	8,888	8,888	8,888
Pseudo R^2	-	-	-	-	0.846
Adj. R^2	0.328	0.273	0.289	0.434	-

Table 9: **Hedge Fund UCC Information Access: Evidence from Economic Linkage**

This table explores the relation between stock trading activities of UCC hedge funds and economic linkages of portfolio stocks with the bankruptcy-filing firm over the next six quarters upon bankruptcy-filing quarter using the following specification:

$$I(LargeTrade)_{i,j,t} = \beta(EconLink)_{i,j,t} + \delta_{i,t} + \theta_{j,t} + \epsilon_{i,j,t}$$

Large Trade in this table is defined at the stock-fund level at the quarterly frequency as equal to one if the absolute value of the quarterly change in a fund's percentage ownership in a stock ranks in the top 5 percentile for the whole sample (i.e. greater than or equal to the 95th percentile), and zero otherwise. *Large Trade-Buy* is equal to one if fund *j* made a large buy transaction of stock *i* in quarter *t*, whereas *Large Trade-Sell* is equal to one if fund *j* made a large sell transaction of stock *i* in quarter *t*. *Econ Link FF12Ind* is an indicator variable that equals one if a portfolio firm of an UCC hedge fund is within the same Fama-French 12 Industry with the bankruptcy-filing firm. *Econ Link Universal* is an indicator variable that equals one if a portfolio firm of an UCC hedge fund has one of the following three types of economic linkage with the bankruptcy-filing firm: Within the same Fama-French 12 Industry; having supplier-big-customer relationship for the current year or any of the previous three years; having similar product descriptions and therefore within the same industry classification as established in Hoberg and Phillips (2010, 2016). Detailed variable definitions are in Table 1. Fund-year-quarter-fixed effects and stock-year-quarter-fixed effects are included, standard errors are triple-clustered at the fund-, stock-, and year-quarter-level, and t-statistics are reported with coefficients. ***, **, and * stand for statistical significance at the 1%, 5%, and 10% level, respectively.

	(1) Large Trade	(2) Large Trade	(3) Large Trade - Buy	(4) Large Trade - Buy	(5) Large Trade - Sell	(6) Large Trade - Sell
Econ Link FF12Ind	0.00963*** (3.226)		0.00471** (2.125)		0.00452*** (3.053)	
Econ Link Universal		0.01020*** (3.407)		0.00495** (2.252)		0.00490*** (3.347)
Fund*YQ FE	Y	Y	Y	Y	Y	Y
Stock*YQ FE	Y	Y	Y	Y	Y	Y
N Obs	224,871	224,871	224,871	224,871	224,871	224,871
Adj. R^2	0.134	0.134	0.127	0.127	0.106	0.106

Table 10: **Profitability of Hedge Fund Trading upon UCC Information**

This table explores the profitability of hedge funds' stock trading activities upon access to UCC information. We define a hedge fund that is an UCC member for a bankruptcy-filing firm as an UCC hedge fund in the next six quarters upon the bankruptcy-filing quarter. Among all stock holdings of an UCC hedge fund, we form two ad-hoc portfolios, namely, the large-trade portfolio and the small-trade portfolio. The large-trade portfolio consists of stocks that have experienced intensive trading by the UCC hedge fund: The absolute value of the quarterly change in the UCC hedge fund's percentage ownership in the stock ranks in the top 5 percent for the whole sample (i.e. greater than or equal to the 95th percentile). We first calculate the DGTW-adjusted return for each stock in the large-trade portfolio of each UCC hedge fund at the quarterly frequency, and then calculate the value-weighted average to obtain a portfolio-level DGTW-adjusted return. We then compile the large-trade portfolio of each UCC hedge fund at quarter t into an aggregate large-trade portfolio and obtain the value-weighted average of portfolio-level DGTW-adjusted returns. We compare the performance of this aggregate large-trade portfolio with that of a similarly constructed aggregate small-trade portfolio over time. We consider various horizons from one quarter to six quarters when evaluating performance differentials between the large-trade and small-trade portfolios. The performance differential between the large-trade and small-trade portfolios is presented with t-statistics reported. ***, **, and * stand for statistical significance at the 1%, 5%, and 10% level, respectively.

Return Horizon	Portfolio: Small Trade	Portfolio: Large Trade	D(Large-Small)	t-stat
1 Qtr	0.0003	0.0068	0.0065	1.366
2 Qtr	-0.0010	0.0102	0.0112*	1.867
3 Qtr	0.0008	0.0123	0.0115**	2.150
4 Qtr	0.0009	0.0174	0.0165***	2.622
5 Qtr	0.0016	0.0188	0.0172**	2.590
6 Qtr	0.0044	0.0176	0.0132**	1.999

Online Appendix

"Do Hedge Funds Exploit Material Nonpublic Information? Evidence from Corporate Bankruptcies"

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Yan Yang

Jingyu Zhang

September 1, 2023

This Online Appendix explains the procedures of sample construction, investigate data issues, illustrates institutional details, and provides additional empirical results. The goal of these additional results is to check the robustness of the main results presented in the paper. The intuition and summary of these results are in main body of the paper with corresponding references.

A1   Name Matching Procedures

In this section, we provide details on name matching procedures between UCC members and 13F institutional investors. We conduct the following two steps to match UCC member names with historical names of 13F institutional investors.

First, we match UCC members and 13F institutions by name, supplemented by cross-checking the address and the representative of an UCC member with the 13F filings of the same entity. We obtain a complete list of historical management company names (MGRNAME) and identifiers (MGRNO) from the Thomson Reuters Institutional Holdings Database (13F). This dataset is arranged by the MGRNAME-MGRNO pair and tracks name changes of a particular investment company that has ever filed a Form 13F with the SEC on a quarterly basis.[1] We first remove punctuations and entity designations from the names of UCC members and 13F institutions. For UCC members, the strings include "and Subsidiaries", "and Affiliates", " Association", "N.A.", "Corporation", "Company", "Corp.", "Co.", "Inc.", "Limited", "LP", and any variant thereof. For 13F insti-

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[1]MGRNO is the manager number for a particular investment company assigned by 13F. Note that the MGRNO identifiers are reused. According to the data manual of 13F, a gap of more than one year in the reporting date for the same MGRNO typically reflects a different and unrelated manager. In other cases, a manager may be reassigned a different MGRNO, usually when a name change occured. However, most name changes are not associated with a different MGRNO, but instead reflect an official name change or a different manner of abbreviating the same name. We take into account of these data details in our name-matching process.

tutions, strings such as "MANAGEMENT COMPANY", "MANAGEMENT SA", "MANAGEMENT INC.", "MGMT CORP", "MGMT LTD", "INCORPORATED", "INC.", "LP", "LLC", "PTNR", "SVCS.", and any variant thereof are removed. We then use COMPLEV function in SAS to generate a list of potential matches between the names of UCC members and the historical names of 13F institutions. Next, we manually verify whether these potential matches are accurate matches. Specifically, we cross-check the address and the representative of an UCC member with the 13F filings of the same entity in the quarter of UCC formation.[2] For example, UCC member "Pentwater Capital Management LP" for the bankrupt company Samson resources corporation matches with 13F institutional investor "PENTWATER CAPITAL MGMT LP" with MGRNO 11894. On UCC notice of the case, "Pentwater Capital Management LP" is associated with the address "614 Davis St., Evanston, IL", which is exactly the same as the address on the Form 13F filed in the quarter of UCC formation.[3]

Second, we examine UCC members that we fail to find a match after the first step. A simple name-match may overlook institutional investors since some UCC member names are at the fund-level or subsidiary-level whereas names of 13F institutions are at the management company-level.[4] We proceed by searching each UCC member that we fail to find a match after the first step in EDGAR, supplemented by Web searches, to check whether a fund is under a particular management company, and more importantly, to

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[2]A few UCC members do not file Form 13F around the corresponding UCC event but instead file Form 13F in other quarters during our sample periods. In other words, we are able to identify MGRNO for these UCC members but we could not observe their stock holdings around an UCC event. We include these institutions in our sample because we are interested in hedge funds that have ever appeared on UCC (we define these funds as distressed hedge funds.). Section 4.4 relies on all of our in-sample distressed hedge funds and presents supporting evidence of our main results.

[3]Samson resources corporation files bankruptcy on September 16, 2015, and we check the Form 13F at the end of September 2015. See https://www.sec.gov/Archives/edgar/data/1425851/000114036115041820/xslForm13F_X01/primary_doc.xml for detail.

[4]Most of the UCC member names that are at the fund-level also list the associated management company. For example, Hutchin Hill Capital Primary Fund,Ltd. c/o Hutchin Hill Capital, LP.

check whether the associated management company files Form 13F. Similarly, we cross-check the address and the representative of an UCC member with the 13F filings of the corresponding management company.

Importantly, we take mergers and acquisitions (M&A) between financial institutions, especially full-service banks, into account in the name-matching process. We obtain information on M&A of an UCC member from the Securities Data Company (SDC) Platinum M&A database. To illustrate one example on banks, the Fleet Financial Group merge with BankBoston to form Fleet Boston Corporation on March 14, 1999. The merged entity continues to use the MGRNO 38260 until Fleet Boston is acquired by the Bank of America on October 27, 2003. We use the MGRNO 62890 of the Bank of America for all UCC member names associated with Fleet Boston or the Fleet Financial Group after the merger date. Another example is about Allied Capital Corporation, a private equity firm. On April 1, 2010, Allied Capital Corporation is acquired by Ares Capital Management, a hedge fund company. However, the bankruptcy case in which Allied Capital Corporation serves as UCC member is filed on June 1, 1999. Although we know the MGRNO for Ares Capital Management, we can not use it for Allied Capital Corporation because the merger does not happen at the time of the UCC formation.

We follow similar procedures to match UCC members with hedge funds in the Lipper TASS Database.[5]

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[5]We thank Yuehua Tang for sharing with us the link-file of Lipper Tass hedge fund Database and 13F filings.

A2 Updates Regarding Thomson Reuters Ownership Data Issues

As Ben-David et al. (2021) pointed out that Thomson Reuters Institutional Holdings Database exhibits an increase in stale data, excluded securities, and the number of dropped institutions beginning in June 2013, we conduct the following tests to investigate the magnitude of the problem and conclude that Thomson Reuters has fixed these data quality issues as of the latest draft of our paper.

We follow "Research Note Regarding Thomson-Reuters Ownership Data Issues" from WRDS Research in May 2017 to fix the 13F data problem.[6] In particular, we obtain 13F dataset based on original SEC 13F filings from the WRDS SEC Analytics Suite Database. Then, we follow and double-check the data fix SAS code from WRDS Research to construct an updated 13F Institutional Holdings dataset (13F EDGAR) from June 2013 to March 2021.[7] In order to compare the magnitude of the data quality issues, we follow the same procedures to construct a 13F Institutional Holdings dataset (13F Thomson Reuters) in the same sample period.

The following tests support our argument that Thomson Reuters 13F Ownership Database does not have quality issues as stated in Ben-David et al. (2021) as of July 2023. First, We compare the number of unique 13F institutions between 13F EDGAR and 13F Thomson Reuters. In Appendix Figure A 4.2, the number of reporting 13F institutions from both data sources follow almost exact trajectory from June 2013 to December 2019. However,

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[6]See https://wrds-www.wharton.upenn.edu/documents/533/Research_Note_-Thomson_S34_Data_Issues.pdf for detail. In fact, further investigation shows that the 13F data issues is not resolved as of May 2020. On page 11 of https://wrds-www.wharton.upenn.edu/documents/1414/WRDS_Ownership_Data.pdf issued by WRDS Research says, *"As of May 2020, Thomson-Reuters 13F Data (SP, S34) is missing few entities (e.g. Blackrock) for 2018."*

[7]As of July 2023, the WRDS SEC Analytics Suite Database did not update this dataset. We conjecture that WRDS stopped updating the database perhaps because the data issue in Thomson Reuters 13F Database had been resolved after March 2021.

we observe that the number of 13F institutions is larger in 13F Thomson Reuters starts from March 2020. The number of 13F institutions drops sharply from September 2020 to December 2020 in 13F EDGAR. Second, we find that institutional ownership of US common stocks is around 70% for both 13F EDGAR and 13F Thomson Reuters from June 2013 to December 2020 as in Appendix Figure A 4.3. We notice that common stocks' institutional ownership is slightly higher in the first half of the sample period for 13F EDGAR dataset. But we observe that the ownership number drops drastically from December 2020 to March 2021 at the same time. We therefore argue that the latest version of 13F Thomson Reuters might be a better choice in studying institutional ownership of US common stocks given the neglectable difference between the two datasets and the drastic decrease in 13F EDGAR.To provide more direct evidence to support our argument, we replicate the tables on page three and page four of "Research Note Regarding Thomson-Reuters Ownership Data Issues". Researchers from WRDS noticed that Thomson Reuters dropped several institutions from their coverage and used carried forward stale holdings beginning from the last quarter of 2013. To illustrate their point, they provided the holding reports of BlackRock Inc as an example (see Panel A.1 of Appendix Table A 5.6). We show that there is no stale and missing record for BlackRock Inc during the same period using 13F Thomson Reuters (see Panel A.2 of Appendix Table A 5.6). Moreover, they observed that Apple Inc was missing from Thomson Reuters after June 2015 (see Panel B.1 of Appendix Table A 5.6). We show that this is no longer the case. Both the number of 13F institutions that own Apple Inc's stocks and the shares of Apple Inc owned by 13F institutions are stable during the same sample period (see Panel B.2 of Appendix Table A 5.6). Taken together, we conclude that Thomson Reuters 13F Ownership Database does not have quality issues as of the writing of our paper.

A3 Details about Material Nonpublic Information from UCC

In this section, we provide two case studies to illustrate the content of material nonpublic information from UCC using the SEC Complaint against Barclays Bank PLC and Steven J. Landzberg filed on May 30, 2007 and the SEC Complaint against Daniel B. Kamensky filed on September 3, 2020 in the United States District Court for the Southern District of New York. We select these two cases since the material nonpublic information from UCC is explicitly specified on the corresponding SEC Complaints. We collect the Complaint documents from the SEC official website.

In this paper, we argue that hedge funds serving as UCC members have access to a rich variety of material nonpublic information about the bankrupt firm and its related entities. We now provide additional supporting evidence other than Section 1103 of the U.S. Bankruptcy Code as described in Section 2.

A 3.1 Galey & Lord, Inc.

According to the facts section of the SEC Complaint against Barclays Bank PLC and Steven J. Landzberg, the U.S. Trustee appointed Barclays to the Official Unsecured Creditors Committee of the bankrupt company Galey & Lord, Inc. on March 1, 2002. Landzberg, who was a director and proprietary trader for Barclays, signed the official unsecured committee bylaws and submitted creditors committee acceptance form to the U.S. Trustee, which included confidentiality provisions, trading prohibitions, and an acknowledgement of fiduciary responsibility. However, Barclays made fifteen illegal trades in Galey & Lord's bond securities while Lanzberg was serving as one of the UCC members of Galey & Lord, Inc and had access to material nonpublic information. Importantly, the Complaint emphasizes the specific content of the material nonpublic information: *"At the time*

of these trades, the Defendants (Barclays Bank PLC and Steven J. Landzberg) had material nonpublic information by virtue of membership on the Official Unsecured Creditors Committee-including but not limited to the company's most recent business plans, detailed management projections, proprietary analyses from committee advisors, and other information concerning the terms and status of the restructuring negotiations."

A 3.2   Neiman Marcus Group Ltd. LLC

The SEC Complaint against Daniel B. Kamensky points directly to hedge funds as UCC members and illustrates one type of material nonpublic information that hedge funds exploit to advance their own pecuniary purposes. Kamensky founded hedge fund company Marble Ridge Capital LP and served as managing partner and portfolio manager for the firm. As one of the largest unsecured debt holders of Neiman Marcus Group Ltd. LLC, Marble Ridge, represented by Kamensky, was elected as one of the three co-chairs of Neiman's UCC. In the solicitation letters to potential UCC members, the U.S. Trustee states UCC members would be required to act as *"fiduciaries who represent all unsecured creditors as a group."* In other words, the actions taken by UCC members must be in aligned with the best interests of unsecured creditors as a group. But Kamensky abused his role by utilizing material nonpublic information obtained from UCC to his own advantage. Kamensky bid for the Series B Shares at $ 0.20 per share from other unsecured creditors wishing to sell their shares according to the plan of reorganization. Within an hour of learning of a competing bid for the Series B Shares at $ 0.30 per share from the UCC's financial advisor, Kamensky tried to manipulate the offering of those securities and coerced the rivalry bidder to abandon its higher bid so that his own hedge fund company could obtain those securities at a lower price, but at the cost of all other unsecured credi-

tors, who could have sold the Series B Shares at $ 0.30 per share to the competing bidder. The Complaint states: *"Kamensky had given the UCC the false impression that he would act appropriately during the bidding process in light of his fiduciary duty but then used information he obtained from his role on the UCC to intimidate a competing bidder and artificially reduce the price of the securities for Marble Ridge's financial gain...This fraudulent conduct violated Kamensky's fiduciary obligations to the UCC."*

A 3.3   Material Nonpublic Information from UCC: the Tip of the Iceberg

A bankrupt firm does not operate in vacuum. In the process of bankruptcy reorganization, the bankrupt company may need to cut off existing business ties, look for new strategic partners, and pivot to adopt advanced technologies, etc. Moreover, due to the debtor's desire to obtain approval from UCC, the debtor often shares a rich variety of material nonpublic information including but not limited to detailed financial projections, restructuring alternatives, and recovery sensitivity analyses, etc. with UCC members. The files and information shared extend beyond the Bankruptcy Court requirements and the data available to the general public. Therefore, UCC members are among the first to continuously receive such ample material nonpublic information during bankruptcy renegotiation. What we are able to observe is only the tip of the iceberg of material nonpublic information that UCC members have access to. Without the fortune to observe all sorts of material nonpublic information shared with UCC members, we present the above two illustrations.

A4 Appendix Figures

A 4.1 Sample UCC Notice

An example of UCC notice filed by U.S. Trustee William K. Harrington appointed seven members for UCC of the bankrupt company Sun Edison, Inc. on April 29, 2016. The representative and the address of an UCC member are instrumental in matching with 13F and TASS databases.

NOTICE OF APPOINTMENT OF OFFICIAL
COMMITTEE OF UNSECURED CREDITORS

William K. Harrington, United States Trustee for Region 2, pursuant to

Section 1102(a) of title 11, United States Code, hereby appoints the following

unsecured creditors that are willing to serve on the Official Committee of

Unsecured Creditors of the SunEdison, Inc. and its affiliated debtors-in-possession:

1. BOKF, N.A., as Indenture Trustee
   1600 Broadway
   3rd Floor
   Denver, CO 80202
   Contact: George F. Kubin
   Telephone: (303) 864-7206

2. AQR DELTA Master Account, L.P.
   2 Greenwich Plaza, 4th Floor
   Greenwich, CT 06830
   Contact: Melinda C. Franek, VP
   Telephone: (203) 742-3007

3. Advantage Opportunities Fund, LP
   1221 Brickell Ave, Suite 2660
   Miami, FL 33131
   Contact: Irvin Schlussel
   Telephone: (914) 714-0531

4. D.E. Shaw Composite Holdings, LLC
   1166 Avenue of the Americas, 9th Floor
   New York, NY 10036
   Contact: Martin Lebwohl
   Telephone: (212) 478-0358

5. Flextronics Industrial, Ltd.
   600 Shiloh Road
   Plano, TX 75074
   Contact: Donald Heap
   Telephone: (469) 223-9726

6. Albemarle Corporation
   451 Florida Street
   Baton Rouge, LA 70801
   Contact: Michael Lutgring
   Telephone: (225) 388-7236

7. Vivint Solar, Inc.
   3301 N. Thanksgiving Way, Suite 500
   Lehi, UT 84043
   Contact: Jim Lundberg
   Telephone: (801) 234-7080

Dated: New York, New York
April 29, 2016

A 4.2   Comparison between 13F EDGAR and 13F Thomson Reuters: Number of 13F

Institutions

This figure presents the number of unique 13F institutions (identified by unqiue MGRNO number) from the SEC 13F filings and Thomson Reuters 13F Database during June 2013 to March 2021. Institutional investors with valid CRSP stock holdings(holding shares are larger than zero and the CUSIP of each stock has a corresponding PERMNO identifier) are included.
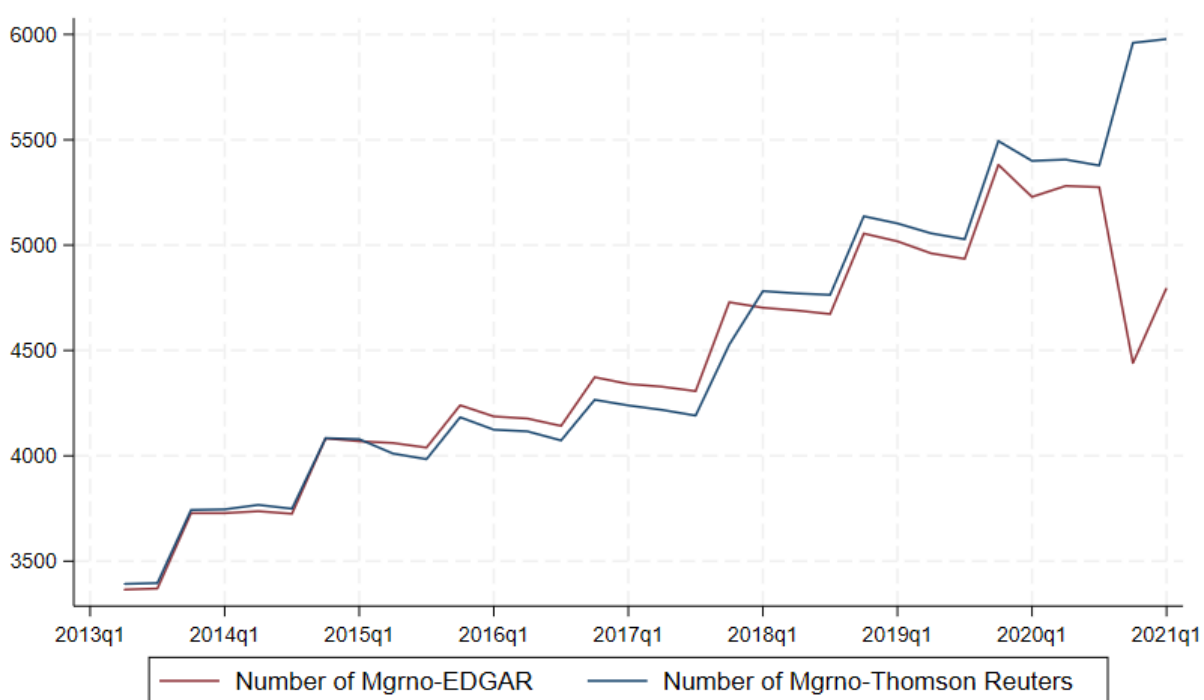
A 4.3   Comparison between 13F EDGAR and 13F Thomson Reuters: Common Stock

Ownership

This figure shows the comparison of common stock ownership between the SEC 13F filings and Thomson Reuters 13F Database during June 2013 to March 2021. In order to compare with the figure on page 14 of "Research Note Regarding Thomson-Reuters Ownership Data Issues" issued by WRDS Research in May 2017, CRSP stocks with share codes 10, 11, and 12 (also known as US common stocks) are included. Institutional ownership is defined as the market value of 13F institutions' common stock holdings divided by the market cap of these stocks at the end of each quarter.

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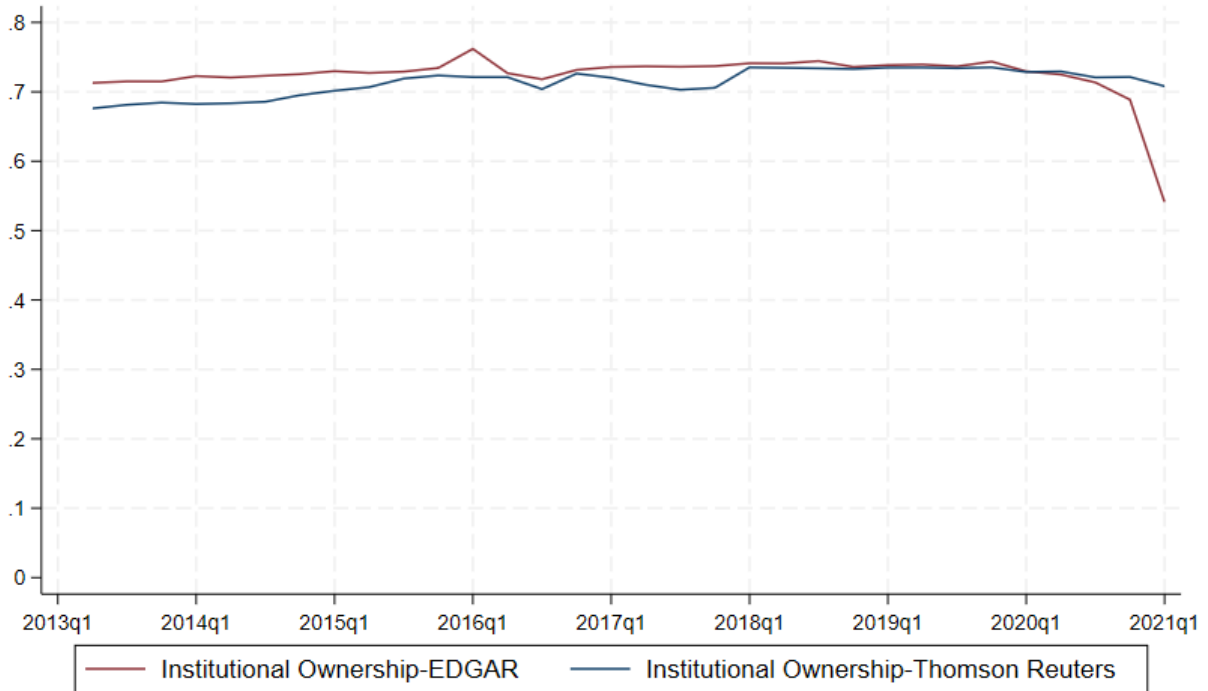
A5 Appendix Tables

A 5.1 Most Active Hedge Funds on UCC

This table presents top ten hedge funds appointed as UCC members in Chapter 11 Bankruptcy. SEC filings, company official website, and other specialized publications (e.g., Barron's, Alpha Magazine, and Institutional Investors.) are utilized to identify hedge funds as one of the largest unsecured creditors on UCC. Panel A provides sample hedge funds that have 13F identifier (mgrno number) and TASS identifier (companyid). For reference, Panel B presents hedge funds that have 13F identifier but without TASS identifier.

Panel A: Top Hedge Funds on UCC: Hedge Funds with 13F Coverage

Hedge Fund UCC Member	Cases Involved
Oaktree Capital Management	25
PPM America Special Investments Fund	12
Angelo, Gordon & Co. L.P.	8
Cerberus Capital Management	8
Loomis, Sayles & Co. L.P.	8
Magten Asset Management	8
Aegon Asset Management	7
Appaloosa Management. L.P.	7
AQR Capital Management	7
Amalgamated Gadget. L.P.	7

Panel B: Top Hedge Funds on UCC: Sample Hedge Funds

Hedge Fund UCC Member	Cases Involved
Angelo, Gordon & Co. L.P.	8
Cerberus Capital Management	8
Loomis, Sayles & Co. L.P.	8
Magten Asset Management	8
Aegon Asset Management	7
Appaloosa Management. L.P.	7
AQR Capital Management	7
Elliott Investment Management	6
Highland Capital Management. L.P.	5
York Capital Management	5

A 5.2 Firm Characteristics by UCC Hedge Fund

This table provides comparisons among bankrupt firms with at least one sample hedge fund as UCC member, bankrupt firms with at least one 13F hedge fund but not sample hedge funds as UCC member, and bankrupt firms with no hedge funds as UCC member (*Other Ins*) in the latest fiscal year before filing bankruptcy. For each variable, the mean and the median are reported. The last six columns present p-values from the two-sample t-tests and Wilcoxon rank-sum tests of the null hypothesis of there being no differences in firm characteristics across the subsample firms. Continuous financial variables are winsorized at the 1% and 99% levels to remove influential outliers. Detailed variable definitions can be found in Table 1.

	Whole Sample (N=612)		Sample with HFs (13F and TASS) (N=144) (1)		Sample with HFs (13F and no TASS) (N=89) (2)		Sample with no HFs (N=379) (3)		(1) vs (2)		(1) vs (2+3)		(1+2) vs (3)	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median	t-test	rk-test	t-test	rk-test	t-test	rk-test
Size:														
Assets	6,018	1,054	10,921	1,375	6,265	1,230	4,096	932	0.536	0.875	0.078	0.036	0.112	0.002
Liabilities	5,932	1,081	10,114	1,342	5,784	1,185	4,379	924	0.545	0.888	0.121	0.022	0.185	0.002
Sales	2,875	839	2,853	925	3,714	966	2,686	819	0.576	0.998	0.978	0.424	0.581	0.239
Employees	8,458	2,900	8,155	3,400	8,380	2,900	8,592	2,700	0.907	0.382	0.839	0.076	0.837	0.099
Performance:														
ROA	0.009	0.045	0.007	0.048	0.048	0.048	0.000	0.041	0.154	0.366	0.931	0.952	0.309	0.293
Tangibility	0.361	0.328	0.416	0.384	0.363	0.345	0.338	0.300	0.210	0.233	0.008	0.012	0.017	0.019
Leverage	1.044	0.933	1.134	0.893	0.972	0.946	1.026	0.934	0.099	0.970	0.041	0.923	0.369	0.932
Secured debt/Liabilities	0.321	0.290	0.279	0.247	0.278	0.213	0.350	0.326	0.968	0.718	0.046	0.090	0.005	0.009
Bankruptcy Characteristics:														
Delaware	0.444	-	0.444	-	0.416	-	0.451	-	0.669	-	1.000	-	0.669	-
DIP	0.704	-	0.646	-	0.730	-	0.720	-	0.181	-	0.079	-	0.267	-
Prepack	0.270	-	0.292	-	0.292	-	0.256	-	0.994	-	0.496	-	0.332	-
Duration	514	364	483	379	566	442	513	344	0.296	0.353	0.441	0.690	0.973	0.761

A 5.3 Hedge Fund Trading Upon UCC Events: Alternative Event Windows

This table provides additional tests on whether hedge funds appointed as UCC members (UCC hedge funds) trade on UCC information of bankrupt firms using different event windows. In particular, Panel A and Panel B examines trading activities of distressed hedge funds in the five quarters and seven quarters after the bankruptcy event, respectively. All dependent variables are defined in Tables 4 and 5. Covariates include hedge fund size, flows, and rate of return, all measured at the previous quarter end. All variables are defined in Table 1. From column (1) to column (4), the model is estimated using ordinary least squares (OLS). Column (5) is estimated using Poisson regression. Fund-fixed effects and year-quarter-fixed effects are included, standard errors are double-clustered at the fund- and year-quarter-level, and t-statistics or z-statistics are reported with coefficients. ***, **, and * stand for statistical significance at the 1%, 5%, and 10% level, respectively.

Panel A: Hedge Fund Trading Upon UCC Events: 5 Quarters

	(1) High Turnover	(2) High Turnover Buy	(3) High Turnover Sell	(4) Large Trade	(5) Num Large Trade
UCC Information	0.116***	0.100***	0.125***	0.104***	0.240***
	(3.256)	(3.225)	(3.769)	(2.886)	(3.611)
Covariates	Y	Y	Y	Y	Y
Fund FE	Y	Y	Y	Y	Y
YQ FE	Y	Y	Y	Y	Y
N Obs	3,097	3,097	3,097	3,097	3,099
Pseudo R^2	-	-	-	-	0.804
Adj R^2	0.466	0.453	0.448	0.548	-

Panel B: Hedge Fund Trading Upon UCC Events: 7 Quarters

	(1) High Turnover	(2) High Turnover Buy	(3) High Turnover Sell	(4) Large Trade	(5) Num Large Trade
UCC Information	0.132***	0.121***	0.139***	0.108***	0.270***
	(3.752)	(3.761)	(4.237)	(2.841)	(4.208)
Covariates	Y	Y	Y	Y	Y
Fund FE	Y	Y	Y	Y	Y
YQ FE	Y	Y	Y	Y	Y
N Obs	3,097	3,097	3,097	3,097	3,099
Pseudo R^2	-	-	-	-	0.805
Adj R^2	0.469	0.455	0.451	0.549	-

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A 5.4 Hedge Fund Trading Upon UCC Events: From Filing to Confirmation

This table examines whether hedge funds appointed as UCC members (UCC hedge funds) trade on UCC information of bankrupt firms from the bankruptcy-filing quarter to the plan of organization confirmation quarter. In particular, $UCCInformationAlt$ is an indicator variable that equals one for a hedge fund that joins the UCC for a bankruptcy-filing firm from the bankruptcy-filing quarter to the plan of organization confirmation quarter. All dependent variables are defined in Tables 4 and 5. Covariates include hedge fund size, flows, and rate of return, all measured at the previous quarter end. All variables are defined in Table 1. From column (1) to column (4), the model is estimated using ordinary least squares (OLS). Column (5) is estimated using Poisson regression. Fund-fixed effects and year-quarter-fixed effects are included, standard errors are double-clustered at the fund- and year-quarter-level, and t-statistics or z-statistics are reported with coefficients. ***, **, and * stand for statistical significance at the 1%, 5%, and 10% level, respectively.

	(1) High Turnover	(2) High Turnover Buy	(3) High Turnover Sell	(4) Large Trade	(5) Num Large Trade
UCC Information Alt	0.063*	0.049	0.087**	0.052	0.153*
	(1.754)	(1.497)	(2.581)	(1.211)	(1.918)
Covariates	Y	Y	Y	Y	Y
Fund FE	Y	Y	Y	Y	Y
YQ FE	Y	Y	Y	Y	Y
N Obs	3,097	3,097	3,097	3,097	3,099
Pseudo R^2	-	-	-	-	0.804
Adj. R^2	0.462	0.450	0.445	0.545	-

A 5.5 Hedge Fund Trading Upon UCC Events: Drop Most Active Hedge Funds

This table examines whether hedge funds appointed as UCC members (UCC hedge funds) trade on UCC information in the six quarters following the UCC event after dropping the top ten most active hedge funds involved in UCC of bankrupt firms. All dependent variables are defined in Tables 4 and 5. Covariates include hedge fund size, flows, and rate of return, all measured at the previous quarter end. All variables are defined in Table 1. From column (1) to column (4), the model is estimated using ordinary least squares (OLS). Column (5) is estimated using Poisson regression. Fund-fixed effects and year-quarter-fixed effects are included, standard errors are double-clustered at the fund- and year-quarter-level, and t-statistics or z-statistics are reported with coefficients. ***, **, and * stand for statistical significance at the 1%, 5%, and 10% level, respectively.

	(1) High Turnover	(2) High Turnover Buy	(3) High Turnover Sell	(4) Large Trade	(5) Num Large Trade
UCC Information	0.133***	0.135***	0.128***	0.136***	0.156**
	(3.267)	(3.820)	(3.460)	(3.169)	(2.210)
Covariates	Y	Y	Y	Y	Y
Fund FE	Y	Y	Y	Y	Y
YQ FE	Y	Y	Y	Y	Y
N Obs	2,731	2,731	2,731	2,731	2,733
Pseudo R^2	-	-	-	-	0.785
Adj. R^2	0.470	0.451	0.443	0.547	-

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A 5.6 Updates Regarding Thomson Reuters Ownership Data Issues:Tables

This table presents evidence that the data quality issues in Thomson Reuters 13F Database has been resolved as of July 2023. Panel A uses BlackRock Inc as an example, and Panel B features Apple Inc. For the purpose of comparison, Panel A.1 and Panel B.1 are tables from "Research Note Regarding Thomson-Reuters Ownership Data Issues", whereas Panel A.2 and Panel B.2 are tables following the same criteria as tables in Panel A.1 and Panel B.1, but based on the latest version of Thomson Reuters 13F Database. Detailed sample construction method is in Online Appendix of Ben-David et al. (2021) and the aforementioned research note from WRDS Research.

Panel A.1: BlackRock Inc Stock Holdings from WRDS Research Note May 2017

MGRNO	fdate	Manager Name	Report Date	File Date	13F Assets	Note
9385	2012-03-31	BLACKROCK INC	2012-03-31	2012-03-31	$725,428.00	
9385	2012-06-30	BLACKROCK INC	2012-06-30	2012-06-30	$702,026.00	
9385	2012-09-30	BLACKROCK INC	2012-09-30	2012-09-30	$710,955.00	
9385	2012-12-31	BLACKROCK INC	2012-12-31	2012-12-31	$707,000.00	
9385	2013-03-31	BLACKROCK INC	2013-03-31	2013-03-31	$815,320.00	
9385	2013-06-30	BLACKROCK INC	2013-06-30	2013-09-30	$819,888.00	
9385	2013-09-30	BLACKROCK INC	2013-06-30	2013-09-30	$864,935.00	Stale Record
9385	2013-12-31	BLACKROCK INC	2013-06-30	2013-09-30	$940,828.00	Stale Record
9385	2014-03-31	BLACKROCK INC	2013-06-30	2013-09-30	$947,754.00	Stale Record
	2014-06-30					Missing Record
	2014-09-30					Missing Record
	2014-12-31					Missing Record
	2015-03-31					Missing Record
9385	2015-06-30	BLACKROCK INC	2015-06-30	2015-06-30	$48,229.00	Incorrect Record
9385	2015-09-30	BLACKROCK INC	2015-09-30	2015-09-30	$44,882.00	Incorrect Record

Panel A.2: BlackRock Inc Stock Holdings as of the Lastest Draft of Our Paper

MGRNO	Manager Name	Report Date	File Date	13F Assets	Note
9385	BLACKROCK INC	2012-03-31	2012-03-31	$875,643.33	
9385	BLACKROCK INC	2012-06-30	2012-06-30	$831,668.43	
9385	BLACKROCK INC	2012-09-30	2012-09-30	$846,933.29	
9385	BLACKROCK INC	2012-12-31	2012-12-31	$856,461.91	
9385	BLACKROCK INC	2013-03-31	2013-03-31	$974,637.37	
9385	BLACKROCK INC	2013-06-30	2013-06-30	$988,731.61	No Stale or Missing Record
9385	BLACKROCK INC	2013-09-30	2013-09-30	$1,063,401.44	No Stale or Missing Record
9385	BLACKROCK INC	2013-12-31	2013-12-31	$1,158,718.80	No Stale or Missing Record
9385	BLACKROCK INC	2014-03-31	2014-03-31	$1,183,717.28	No Stale or Missing Record
9385	BLACKROCK INC	2014-06-30	2014-06-30	$1,233,652.17	No Stale or Missing Record
9385	BLACKROCK INC	2014-09-30	2014-09-30	$1,218,726.92	No Stale or Missing Record
9385	BLACKROCK INC	2014-12-31	2014-12-31	$1,313,858.22	No Stale or Missing Record
9385	BLACKROCK INC	2015-03-31	2015-03-31	$1,339,730.50	No Stale or Missing Record
9385	BLACKROCK INC	2015-06-30	2015-06-30	$1,325,713.91	No Stale or Missing Record
9385	BLACKROCK INC	2015-09-30	2015-09-30	$1,229,413.59	No Stale or Missing Record

Panel B.1: The Number of 13F Institutions and APPL Ownership from WRDS Research Note May 2017

	Thomson 13F Institutional Ownership Data (S34)		
File Date	# of Institutions (mgrnos)	# of Institutions with AAPL Ownership	Inst. Ownership of AAPL in Thomson S34
2012-06-30	3,315	1,853	610,017,713
2012-09-30	3,261	1,865	609,991,935
2012-12-31	3,454	1,894	574,073,371
2013-03-31	3,492	1,908	561,021,234
2013-06-30	3,506	1,881	535,325,538
2013-09-30	3,406	1,841	524,699,863
2013-12-31	3,739	2,056	523,773,321
2014-03-31	3,763	2,049	516,786,227
2014-06-30	3,772	2,124	3,665,520,154
2014-09-30	3,707	2,111	3,531,420,698
2014-12-31	3,719	2,116	3,029,086,294
2015-03-31	3,709	2,143	2,819,825,800
2015-06-30	3,608	0	0
2015-09-30	3,523	0	0
2015-12-31	3,497	0	0

Panel B.2: The Number of 13F Institutions and APPL Ownership as of the Lastest Draft of Our Paper

	Thomson 13F Institutional Ownership Data (S34)		
File Date	# of Institutions (mgrnos)	# of Institutions with AAPL Ownership	Inst. Ownership of AAPL in Thomson S34
2012-06-30	3,230	1,861	632,728,949
2012-09-30	3,214	1,876	621,500,906
2012-12-31	3,404	1,924	596,614,842
2013-03-31	3,393	1,916	564,727,080
2013-06-30	3,370	1,875	553,550,109
2013-09-30	3,376	1,908	544,594,798
2013-12-31	3,713	2,088	543,156,976
2014-03-31	3,714	2,065	527,573,789
2014-06-30	3,732	2,138	3,717,765,224
2014-09-30	3,711	2,145	3,562,308,240
2014-12-31	4,044	2,315	3,552,543,107
2015-03-31	4,037	2,350	3,503,097,452
2015-06-30	3,973	2,342	3,342,373,805
2015-09-30	3,945	2,314	3,220,854,917
2015-12-31	4,137	2,412	3,203,302,075