

Hedge Funds in Chapter 11^{*}

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Abstract

Using a comprehensive sample of 474 Chapter 11 filings from 1996 to 2007, this paper studies the presence of hedge funds in the Chapter 11 process and their effects on bankruptcy outcomes. We find that hedge funds strategically choose positions in the capital structure where their actions could have a bigger impact on value. Their presence, especially as unsecured creditors, helps balance power between the debtor and the secured creditors. We show that their effect on the debtor is manifested in higher probabilities of the latter's loss of exclusive rights to file a reorganization plan, CEO turnover, and adoptions of KERP; while their effect on the secured creditors is manifested through higher probabilities of emergence and payoffs to junior claims.

Keywords: Hedge funds; Chapter 11; Loan-to-own; APR deviation; Creditor rights.

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Hedge Funds in Chapter 11

Abstract

Using a comprehensive sample of 474 Chapter 11 filings from 1996 to 2007, this paper studies the presence of hedge funds in the Chapter 11 process and their effects on bankruptcy outcomes. We find that hedge funds strategically choose positions in the capital structure where their actions could have a bigger impact on value. Their presence, especially as unsecured creditors, helps balance power between the debtor and the secured creditors. We show that their effect on the debtor is manifested in higher probabilities of the latter's loss of exclusive rights to file a reorganization plan, CEO turnover, and adoptions of KERP; while their effect on the secured creditors is manifested through higher probabilities of emergence and payoffs to junior claims.

This paper examines the roles of hedge funds in Chapter 11 and the effects of their presence on the nature and outcome of the bankruptcy process. Hedge funds' participation in the process takes on a variety of forms, including investing in debt claims, buying equity stakes, serving on the unsecured creditors or equity committees, and the pursuit of a "loan-to-own" strategy, where a hedge fund acquires the debt of a distressed borrower with the intention of converting its acquired position into a controlling equity stake upon the firm's emergence from Chapter 11.

The bankruptcy of Northwestern Corporation, a utility company, is illustrative of hedge fund involvement in the restructuring process. The company filed a voluntary petition under Chapter 11 on September 14, 2003. Hedge funds, including AG Capital Funding Partners, Avenue Capital Management, Magten Offshore Partners, and Oaktree Capital Management, owned debt claims against the company and served on the unsecured creditors committee. Northwestern's Restated Plan of Reorganization was confirmed by the court on October 8, 2004. Under the plan, existing shareholders received no distribution. Holders of senior unsecured notes and some general unsecured notes would receive 92% of newly issued common stock. On its first day of trading the stock price of the reorganized Northwestern was \$24.95, implying a recovery rate of 90% for the senior unsecured creditors. Those same hedge funds also emerged as major shareholders in the restructured company.

The example above highlights several features of hedge funds' distress investing strategies. First, unlike traditional creditors (such as banks and insurance companies) that strive to contain damages on

their existing investment at the bankruptcy bargaining table, hedge funds specifically seek out distressed claims for profitable investment. Second, hedge funds typically initiate their investment on the debt side, but with the strategic goal of influencing the restructuring process. In many cases, they end up with a controlling stake in the company upon emergence. Finally, the presence of hedge funds specialized in distress investing could be behind some secular trends in the U.S. Chapter 11 processes, notably, the strengthening of creditors' rights (Bharath, Panchapegesan, and Werner (2007), and Ayotte and Morrison (2009)).

Exponential growth in the hedge fund sector, a more liquid debt market, and an increasingly activist stance among some hedge funds all contributed to the changing nature of the Chapter 11 process in the most recent decade. Hedge funds are uniquely suited to pursuing activist strategies—i.e., investing with the intention to intervene in distressed firms—due to the following reasons. First, compared to other institutional investors (such as banks, mutual funds, and pension funds), hedge funds are more incentivized to pursue high returns and are less subject to conflicts of interest due to a lack of other business relationships with the portfolio firms. Second, unlike mutual funds and pension funds that are required by law to maintain diversified and prudent portfolios, hedge funds are able to hold highly concentrated positions that strengthen their influence at the negotiation table. Third, banks and mutual funds are subject to regulatory restrictions that constrain their capacity in taking on legal liabilities¹ and getting involved in the management of their portfolio firms. For hedge funds, this is less of a concern. Finally, the combination of lock-up provisions with their own investors, the ability to use derivatives, and minimal disclosure requirements affords hedge funds greater flexibility in trading illiquid securities, such as those of distressed firms.

Using a comprehensive sample of 474 Chapter 11 cases from 1996 to 2007 formed by merging a multitude of data sources, we show that hedge funds have had a prevalent presence in the Chapter 11

¹ Holding a large position in a portfolio firm and/or being involved in the management of the firm bring legal uncertainties and obligations to an investor and often impose restrictions on the latter's trading due to insider trading considerations. This is one major reason cited by Black (1990) for why most mutual funds (for whom liquidity is important) and institutional fiduciaries (to whom legal risks can pass through) remain passive shareholders.

process—close to 90% of the cases have publicly observable involvement by hedge funds. This is consistent with practitioners’ observation that hedge funds have become the most active investors in the distressed debt market, generating approximately half of the annual trading volume in distressed debt, about one-third of the trading volume in leveraged loans, and one-quarter in high-yield bonds during 2005-2006.² Despite anecdotal evidence on hedge fund vultures in the media and case studies by law scholars on various strategies favored by hedge funds, there has been no systematic study on hedge fund involvement in Chapter 11 in the past decade or so. Our paper aims to fill this void.

In addition to updating earlier studies on bankruptcy, our paper provides new insights about hedge funds as an emerging force in the Chapter 11 process. First and foremost, we find that hedge funds, especially as large unsecured creditors, balance the power of both the debtor and the secured creditors. The first effect is manifested by higher probabilities of the debtors’ loss of exclusive rights to file a reorganization plan, CEO turnover, and adoptions of KERP; and the second by higher probabilities of emergence and payoffs to junior claims. While the bankruptcy process was traditionally classified as either “management driven” or “senior creditor driven,” hedge funds are behind the transformation of the restructuring process that is best characterized as “management neutral” (Skeel (2003) and Harner (2008a)), referring to a process where managers facilitate and implement the distressed firm’s restructuring plans but do not control the restructuring process.

Second, hedge funds’ choice of distressed targets and positions in the capital structure reflect both their firm-picking skills as well as their desire to have a bigger impact on the reorganization process. Unsecured debt is the most popular entry point for hedge funds because of its “fulcrum” nature and option-like payoffs; that is, unsecured debt is the most likely layer in the capital structure where the enterprise value just barely fails to fully cover the claims. Moreover, hedge funds prefer companies where secured debt is more likely to be over-collateralized, leaving room for the unsecured creditors to

² See “Hedge Funds Turn up the Volume,” by Aaron Siegel in *Investment News*, September 14, 2006: <http://www.investmentnews.com/apps/pbcs.dll/article?AID=/20060914/REG/609140707/1094/INDaily03&ht=>.

take a more active role. When investing in equity, hedge funds prefer firms with relatively strong operating performance and secured creditors with a weak liquidation bias.

Third, hedge funds are effective in achieving the desired outcomes for the claims they invest in. Hedge fund presence increases the likelihood of a successful reorganization, which is usually associated with a higher recovery of junior claims (unsecured debt and equity) and an increased likelihood of their being converted into new equity. Moreover, hedge fund presence on the committees for unsecured creditors or shareholders is associated with more favorable distributions to their class of claims, and hedge funds' pursuance of a loan-to-own strategy is associated with more favorable distributions to both types of junior claims.

Importantly, our evidence is more supportive of efficiency gains brought by hedge funds rather than value extraction from other claims. The presence of hedge fund unsecured creditors is associated with both higher total debt (including secured and unsecured) recovery and more positive stock market response at the time of a bankruptcy filing, suggesting a positive effect of hedge fund creditors on the total value of the firm. Such value creation may come from overcoming secured creditors' liquidation bias (i.e., higher probability of emergence); confronting under-performing CEOs (i.e., higher CEO turnover rate); retaining key personnel (i.e., more frequent adoptions of KERP); and relaxing financial constraints (i.e., the loan-to-own strategy). Relatedly, we show that hedge funds participating in bankruptcy do not have as short a horizon as their counterparts specialized in pure trading. These hedge funds benefit more from companies' emergence where the long-term prospects of the firm are important.

This paper adds to the understanding of the major forces underlying the patterns and changes in the Chapter 11 processes in the U.S. over the past decade, and contributes to the burgeoning research on hedge fund activism in corporate decisions.³ By analyzing the same hedge fund holding different types of stakes (e.g., debt versus equity or both) in a distressed firm over the course of Chapter 11 restructuring,

³ A partial list of this literature includes Brav, Jiang, Partnoy, and Thomas (2008) and Klein and Zur (2009) on hedge fund activism in U.S. corporations; Becht, Franks, Mayer, and Rossi (2009) on hedge fund activism in U.K.; Greenwood and Schor (2009) on hedge funds in mergers and acquisitions; Huang (2009) on hedge funds in leveraged buyouts; and Massoud, Nandy, Saunders, and Song (2010) on hedge funds in syndicated lending and short selling.

our work may stimulate new theoretical research on bankruptcy that allows complex and dynamic interactions among various stakeholders. The prior work most related to our study is Hotchkiss and Mooradian (1997), who examine the role of vulture investors (predecessors to hedge funds specialized in distress investing⁴) in distressed firms. We update the Hotchkiss and Mooradian (1997) analysis of distress investing with new developments from the past decade. We also expand the scope of analysis by investigating the different roles that hedge funds take on the debt side, the equity side, or both, and the effects of their involvement on a broad category of bankruptcy outcomes.

The outline of the paper is as follows. Section I describes the data collection process and presents an overview of hedge funds' participation in Chapter 11. Section II examines the determinants of hedge funds' participation on the debt and equity sides. Section III analyzes the effects of hedge funds' involvement in Chapter 11 on the final outcomes. Finally, Section IV concludes.

I. Sample and Data

A. Sample Formation

This study builds on one of the most comprehensive datasets used in the literature on U.S. bankruptcies. Our sample spans all major Chapter 11 filings over the period 1996-2007, combining information from a variety of data sources—some of which requires intensive manual collection efforts. The status of cases is updated to the end of 2008.

A1. The sample of U.S. Chapter 11 firms

The Lynn M. LoPucki's Bankruptcy Research Database is our starting point to form a sample of large U.S. firms that filed for Chapter 11 during the period 1996-2007. For a firm to be included in our sample, we require that the firm have assets worth at least \$100 million (measured in 1980 constant dollars using the CPI deflator) at the time of a bankruptcy filing, and that it file form 10Ks with the SEC within three years of its Chapter 11 filing. There are 500 such cases for the sample period, which we

⁴ See Rosenberg (2000) (especially Chapter 1) and Harner (2008a) for a discussion of the history of distress investing, and how distress-investing hedge funds in the past decade have evolved beyond their vulture predecessors.

cross check with the New Generation Research's BankruptcyData.com to verify their Chapter 11 status and to obtain information on the final outcomes. Through this process, three cases are dropped because one case was in fact a Chapter 7 filing, and two cases were duplicates of or affiliated with other cases. Another 23 cases drop out of our sample because they were pending (12 cases) or dismissed by court (11 cases) as of December 31, 2008. Our final sample consists of 474 unique cases of Chapter 11 filings. The following industries have the highest representation in the sample: communications (69 cases), financial (37 cases), and business services (26 cases).

The Bankruptcy Research Database provides basic information about the cases including the date of filing; major operational information (such as industry, sales, and assets); the type of filing (such as prepackaged, and prenegotiated); and the outcomes and duration of the Chapter 11 process. Such information is cross-checked with BankruptcyData.com whenever possible. In case of an inconsistency, we resort to firms' 10K filings prior to their Chapter 11 filings to resolve the difference. Unless otherwise specified, all SEC filings are retrieved from the EDGAR website.

A2. Details about the bankruptcy process, outcomes, and key stakeholders

Before final outcomes such as emergence, acquisition, or liquidation, a Chapter 11 case may reach certain milestones or intermediate outcomes, such as the extension of the exclusivity period, the debtor-in-possession (DIP) financing, approval of a key employee retention plan (KERP), and top management turnover. We obtain such information mainly from BankruptcyData.com, supplemented by the New Generation Research's Bankruptcy DataSource database, the Public Access to Court Electronic Records (PACER), and news search in Factiva and LexisNexis. BankruptcyData.com keeps bankruptcy reorganization and liquidation plans and provides summaries for most of the cases that include the following information: classes of claims, dollar amount of allowed claims, recovery, and whether cash or security distribution is made to each class of claimants. For four cases where the reorganization plans were not available, we directly purchased their plans from the U.S. bankruptcy courts. Combining all the above sources with firms' 8K filings, we are able to code, for all of our 474 cases, the key aspects of their Chapter 11 processes from the date of a Chapter 11 filing all the way up to the date of case resolution.

In addition, BankruptcyData.com provides names of the major stakeholders including the largest shareholders, the largest holders of unsecured debt claims, members of the unsecured creditors committee, members of the equity committee, and providers of DIP financing during the restructuring process. We supplement and complete the above information using the Bankruptcy DataSource database, 8K and 10K filings, proxy statements, and news search in NexisLexis and Factiva.

A3. Identifying hedge funds among key stakeholders

In order to track the various roles that hedge funds play at different stages of the bankruptcy and in different parts of the bankrupt firm's capital structure, we start with a master list of all key stakeholders collected from the sources described in Section I.A2 and then identify hedge funds from this list. It is worth noting that there is no official definition for "hedge funds." For the purpose of our research, we classify them as a group of incentivized professional money managers whose pooled investment vehicles are not directly accessible to the general public. Due to the broad criteria, our list of "hedge funds" includes managers of alternative investment vehicles which are often not considered "hedge funds" in the traditional sense. For example, Cerberus Capital Management, a top player in our sample, markets itself as an investment firm that manages both hedge funds and private equity funds.

We identify hedge fund players at the management company level (which could manage multiple funds/portfolios) as this is the relevant unit of activist involvement in the target firms. All stakeholders in our master list (which consists of more than 5,000 entities) are manually checked for their business scopes. A stakeholder is classified as a hedge fund if it is reported by specialized publications (such as Barron's, Alpha Magazine, and Institutional Investors) as such; or if the company's own website lists hedge fund management or alternative investment management for pooled vehicles as part of its major business. Using this top-down approach, we identify 484 unique hedge fund companies in our sample.

Due to the nature of bankruptcy (which is usually triggered by a firm's failure to fulfill its obligations to its creditors), this list provides more detailed investor information on the debt than on the equity side. To supplement information on the latter, we compile a list of institutions that make significant equity investments in the distressed firms—both before and during the Chapter 11 process—

from two SEC filings: Schedule 13D and Form 13F. The Schedule 13D filing is a mandatory filing under Section 13(d) of the 1934 Exchange Act that requires investors to disclose within 10 days of acquisition or conversion of more than 5% of any class of securities of a publicly traded company if they have an interest in influencing the management of the company (including the reorganization of the company). Form 13F filings (from the Thomson Reuters Ownership Database) require all institutions that have investment discretion over a minimum of \$100 million in Section 13(f) securities (mostly publicly traded equity) to disclose their quarter-end holdings in these securities. The window to collect equity ownership information from both sources spans from one year before a Chapter 11 filing to one year after the confirmation of the plan. For ownership disclosed in the Form 13F, we impose a threshold of 2% of the shares outstanding for “significant” equity ownership, as smaller stakes are unlikely to be effective in influencing the reorganization process.

A4. Firm-level financial information and security prices

We merge our sample of Chapter 11 filers with CRSP/Compustat (available through WRDS) and Capital IQ databases to retrieve additional firm-level financial information. While Compustat provides standard information from firms’ income statements and balance sheets, Capital IQ provides more detailed information about capital structure, and in particular, the ratio of secured debt to total assets. When such information is missing from Capital IQ, we use data from BankruptcyData.com. We primarily rely on CRSP to retrieve stock price information for our sample firms, and turn to “pink sheets” available through Bloomberg and Datastream when there is no CRSP coverage.

Finally, we code two key outcome variables in our analysis that characterize distribution to junior claims (unsecured debt and equity), possibly as a result of APR deviations (Eberhart, Moore, and Roenfeldt (1990), Betker (1995), and Eberhart and Weiss (1998)) using mostly information from bankruptcy plans, supplemented by BankruptcyData.com and Datastream. The first variable, *APRCreditor*, measures the APR deviations for secured creditors (Capkun and Weiss (2008)). It is an indicator variable that is equal to one if unsecured creditors’ recovery is greater than zero while secured

creditors' recovery is less than 100%. The second variable, *DistEquity*, is an indicator variable that is equal to one if there is any distribution to the existing equity holders.

Table 1 defines all the major variables used in this paper and discloses their data sources.

[Insert Table 1 here.]

B. Sample Overview

Table 2 Panel A reports Chapter 11 outcomes by year. Several patterns emerge from the table. First, bankruptcy filings are highly cyclical. The burst of the Dot-com bubble in 2000 and subsequent recession is associated with a large number of Chapter 11 filings, while the boom that lasted prior to the 2008 financial crisis is associated with much fewer filings. Second, the adoption of KERP has been on the rise over the sample period and CEO turnover appears to decline over time, a trend also noted by Bharath, Panchapegesan, and Werner (2007), Gilson (1989), Gilson and Vetsuypens (1993), Betker (1995), and Hotchkiss (1995). Third, APR deviations (as captured by *APRCreditor*) are not commonplace in our sample. Occurring in about 15% of the cases, the statistics are much smaller than those reported for the 1980s and early 1990s when APR deviations were the norm rather than the exception (see for example, Weiss (1990), and Adler, Capkun, and Weiss (2007)).⁵ Finally, the average duration of bankruptcy has been substantially shortened, from 21 months at the beginning of our sample period to 12 months in 2004-2006.⁶ In comparison, the average duration in Franks and Torous' (1994) sample over the period 1983-1988 is close to 30 months; and the average is 18 months in Bharath, Panchapegesan, and Werner's (2007) sample over the period 1979-2005.

[Insert Table 2 here.]

Panel B of Table 2 presents the summary statistics of firm and Chapter 11 characteristics variables. All firm-level variables are recorded at the fiscal year end prior to the date of the bankruptcy

⁵ Our sample statistics are consistent with Bharath, Panchapegesan, and Werner (2007), and Capkun and Weiss (2008) using more recent data.

⁶ We refrain from commenting on the duration statistics for 2007 because the exclusion of unresolved cases (12 cases) from our sample might bias down the statistics for the last year of our sample.

filing. To mitigate the influence of outliers, we winsorize all potentially unbounded variables at the 1% and 99% extremes throughout the paper. The median size of our sample firms, measured by total assets (*Assets*), is \$706 million in 2008 constant dollars, putting the typical sample firms between the 6th and 7th size-decile of the Compustat universe during the same period. Both the mean and median ratios of book leverage to total assets (*Leverage*) are close to one, much higher than the mean (median) leverage ratio of 68% (59%) for the Compustat universe—a direct sign of financial distress. Our sample firms also tend to have lower return on assets and lower institutional ownership relative to the Compustat universe.

II. Hedge Fund Presence in Chapter 11: Overview and Determinants

A. Overview of Hedge Fund Involvement

Table 3 presents an overview of hedge fund involvement during the Chapter 11 process where statistics are grouped by year and by the timing of hedge fund presence. The table lists a set of indicator variables to capture the specific roles that hedge funds take on in Chapter 11 as creditors, equity holders, and loan-to-own players. Our main analyses in later sections use the default measures for each category, and sensitivity checks employ alternative measures.

[Insert Table 3 here.]

Our default measure for hedge fund involvement as creditors is *HFCreditorsCommittee*, which refers to cases where a hedge fund sits on the unsecured creditors committee approved by the bankruptcy court.⁷ The alternative measure, *HFLargestCreditor*, refers to cases where a hedge fund is one of the creditors holding the 20 (and in some cases information is available for 50) largest unsecured claims according to the Chapter 11 petition forms.

⁷ In most Chapter 11 cases, the United States trustee appoints seven of the debtor's largest unsecured creditors to the unsecured creditors committee as dictated by the U.S. Bankruptcy Codes Section §1102. An appointment to the committee can enhance the controlling creditors' involvement in the debtor's restructuring and further their investment agenda (Harner (2008a)). The committee recommends and votes on professionals to serve as its counsel and financial advisors, but does not directly vote on a reorganization plan (but makes recommendation to creditors). On the other hand, it is rare to have secured creditors form a committee of their own given that their claims are already collateralized.

Our default measure for hedge fund participation on the equity side is *HFEquityCommittee*, which refers to cases where a hedge fund serves on the official equity committee. The alternative measure is *HFJoint5%*, an indicator variable for hedge funds to jointly hold more than 5% of the outstanding shares based on their Schedule 13D and Form 13F filings, or information from bankruptcy.com, 10K filings, and proxy statements.

A hybrid role between creditors and shareholders that hedge funds take on in the Chapter 11 process arises when they adopt a “loan-to-own” (LTO) strategy, where a hedge fund enters the restructuring process as a major creditor with the intention to emerge from the process as a significant shareholder. Such a strategy is an alternative to the conventional asset, stock, or merger transactions, and has been increasingly used by hedge funds to encroach on the traditional territory of banks (Nadler (2009)).

Our default measure for hedge funds playing the LTO strategy, *HFLTO*, takes a value of one if any of the following situations applies:⁸ (i) A hedge fund identified from a list of the largest unsecured creditors or the unsecured creditors committee members is matched to major shareholders from 13D and 13F filings within one year after bankruptcy; or (ii) bankruptcy reorganization plans confirmed by the court show the classes of claims held by a hedge fund receive equity distribution. In recent years, DIP financing has become creditors’ new power tool of corporate governance in Chapter 11 (Skeel (2003)) because DIP lenders are able to take control of the bankrupt firm by bargaining for seats on the board of directors and receiving shares in the newly reorganized company. As a result, our alternative measure, *HFLTO_DIP*, takes a value of one if any of the above (conditions (i) to (ii)), or (iii) a hedge fund is the provider of DIP financing, holds. DIP loans often turn into equity ownership because they have trigger clauses that replace the DIP debt with preferred or common equity to avoid default, or replace exit financing with debt-for-equity swaps.⁹

⁸ The reorganization plan does not identify whether a particular creditor receives equity distribution. Instead, we infer this information from statements that indicate a certain class of creditors receives equity distribution.

⁹ A recent example is General Growth Properties Inc. in 2009. Farallon Capital Management LLC offered DIP financing that can be converted into 8-10% of the common stock on the effective date of the reorganization plan.

The most salient pattern emerging from Table 3 is that hedge funds' participation in Chapter 11 bankruptcies is commonplace: 87% of the cases have publicly observable hedge fund involvement in some form. In 61% (53%) of the cases, hedge funds are present on the debt (equity) side. Moreover, the industry representation of our full sample is preserved in the subsamples of firms with various forms of hedge fund presence.

Some more specific patterns are summarized as follows. First, despite the absence of an obvious time trend, hedge funds' participation on the debt side exhibits significant cyclicity: hedge fund presence on the unsecured creditors committees or just among the largest unsecured creditors is relatively low in the years of 1997, 2001, and 2007, with tightening credit conditions compared to the sample average. On the other hand, hedge fund provision of DIP financing is steadily rising over our sample period, coinciding with the overall rising trend of DIP financing since 1990 (Dahiya, John, Puri, and Ramirez (2003) and Bharath, Panchapegesan, and Werner (2007)). While the majority providers of DIP financing in the 1990s and early 2000s were banks and financial institutions that had prior lending relationships with the borrower, we show that hedge funds have become a new force in providing DIP financing since 2003.

Second, hedge funds' overall involvement on the equity side is smaller as compared to their presence on the debt side. In about half of the cases hedge funds are among the largest shareholders at the bankruptcy filing. In about 6% of the cases hedge funds serve on the equity committee, and the percentage number increases to double digits in recent years. This increase could be attributed to the fact that more equity committees have been formed in recent years.¹⁰ Conditional on having an equity committee, hedge funds have representation in more than half of the cases, and in all cases during the

For recent examples and related discussions, see "KKR Turns Vulture Investor as Distressed Debt Beckons," by Bravo and Hester in *Bloomberg News*, September 3, 2009.

¹⁰ Unlike the unsecured creditors committee, the equity committee is not common (see Bharath, Panchapegesan, and Werner (2007) and our statistics in Table 2 Panel A). Parties (usually the seven largest equity holders as dictated by the U.S. Bankruptcy Codes Section §1102) that have intention to form the equity committee need to submit motions to the court. Once approved by the court, these parties will most likely become members.

period (2005-2007) (not tabulated). Therefore, it seems that hedge fund shareholders have strong incentives to represent shareholders by forming and joining the equity committee.

Finally, based on our definitions of the loan-to-own strategy, hedge funds are creditors-turned-shareholders in 28% of the cases if DIP financing is not considered and in 31% of the cases if it is. These numbers are remarkably close to the survey evidence in Harner (2008b).¹¹ Hedge funds' loan-to-own strategies are clearly cyclical. In the years of 1997, 2001, and 2007, with tightening credit conditions, the percentage of cases where hedge funds engaged in the loan-to-own strategy ranges from 0 to 19%, which is considerably lower than the sample average.

In addition to the overall pattern of hedge funds' participation at the event level, we list in the Appendix the five most active hedge funds by the particular roles they assume in Chapter 11. It is not surprising that Oaktree Capital Management, one of the world's largest distressed debt investors with \$25 billion assets under management (Goldschmid (2005)), is ranked at the top in the largest unsecured creditors and unsecured creditors committee categories. It also appears on the lists of most active providers of DIP financing and largest shareholders. Cerberus Capital Management is the most active provider of DIP financing and also holds large unsecured claims and serves on the unsecured creditors committee.

B. Determinants of Hedge Fund Participation

Hedge funds make calculated choices in their involvement in the distressed firm, especially with regard to the type of securities they purchase (e.g., debt versus equity). To analyze such choices, we start with predictive regressions that relate hedge fund investment strategies to firm and case characteristics. The dependent variables are the measures for hedge fund involvement as creditors, equity holders, and loan-to-own players, as defined in Section II.A. The set of explanatory variables, described in Section I,

¹¹ One of Harner's (2008b) survey questions is "how often does your firm invest in a company's distressed debt to try to acquire the company or a controlling ownership position in the company, and how often is your firm successful in acquiring at least controlling ownership position?" 32% of the respondents indicate they engage and succeed in this practice.

is chosen following prior literature on bankruptcy.¹² Table 4 Panel A presents the simple correlation among all major variables, and Table 4 Panel B reports the predictive regressions.

[Insert Table 4 here.]

Our discussion of Table 4 Panel B will focus on the default measures for hedge fund participation. We find that overall hedge fund participation on the debt side is positively correlated with firm size. Not surprisingly, hedge funds appear as major creditors (measured by *HFCreditorsCommittee*) when the distressed firm has more cash and liquid assets on its balance sheet, which helps debt recovery. Interestingly, hedge funds prefer to invest in unsecured distressed debt when the ratio of secured debt to assets (*SecuredDebt*) is lower (significant at the 5% level). A low ratio of secured debt to total assets implies that the senior debt is more likely to be over-collateralized, which leaves room for a more active role for the unsecured creditors. Needless to say, the secured debt ratio and the leverage ratio are positively correlated (the correlation is 0.23). We confirm that the significance of the coefficient on *SecuredDebt* comes more from the amount of secured debt than from the amount of total debt because the coefficient remains significant regardless of whether *Leverage* is controlled for, while the latter becomes insignificant in the presence of *SecuredDebt*.

In contrast, hedge fund shareholders (as measured by *HFEquityCommittee*) prefer firms with lower leverage (significant at the 5% level) and are not averse to high levels of secured debt. One possible explanation is that the secured creditor-driven fire-sale bias is weakened (Ayotte and Morrison (2009)) in firms where the senior debt is under-collateralized. In such cases shareholders enjoy more upside potential. Not surprisingly, hedge fund presence on the equity side is positively associated with institutional equity ownership (excluding the investing hedge funds) before bankruptcy (significant at the 1% level). Such stocks may possess characteristics that are appealing to institutional investors (which include hedge funds) in the first place; but more importantly, hedge funds prefer to work with other institutional rather than individual investors when they intend to influence corporate policy and control, a

¹² It is worth noting that adding year and industry (based on two-digit SIC codes) fixed effects does not qualitatively change our main findings in the paper. Further, under most model specifications, these fixed effects are not individually statistically significant.

phenomenon documented by Brav, Jiang, Partnoy, and Thomas (2008) and Bradley, Brav, Goldstein, and Jiang (2010) among hedge funds that pursue activist agendas in under-performing companies and in discounted closed-end funds, respectively.

Certain firm and case attributes predict hedge funds' adopting loan-to-own strategies. In addition to firm size, we find that leverage, the number of claim classes, and prepackaged Chapter 11 cases are positively and significantly (at the 10% or lower levels) associated with adoption of the strategy, while secured debt ratios are negatively (significant at the 5% level) associated with hedge funds' loan-to-own strategies. The combination of high leverage and low secured debt indicates a high probability that unsecured debt will be converted into equity upon reorganization—a natural route for loan-to-own. The mean (median) number of claim classes¹³ (*NumClasses*) in our sample is 9. A larger number of claim classes is usually associated with greater difficulty in reaching agreement among different groups of investors (Franks and Torous (1994), and Betker (1995)). However, the involvement of hedge funds in different parts of the capital structure through the loan-to-own strategy would help internalize such costs.

Prepackaged bankruptcies, constituting close to a third of the cases, are usually available to better performing firms that are easier to reorganize. Tashjian, Lease, and McConnell (1996) find that the unsecured creditors prefer prepackaged bankruptcies to traditional Chapter 11 reorganizations because the priority for secured creditors is less likely to be upheld under prepackaged bankruptcies. Their results are consistent with our evidence that hedge funds start their loan-to-own strategies by first investing in the unsecured debt, which tends to enjoy higher recovery rates under prepackaged bankruptcies.

Table 4, complemented by evidence from Tables 2 and 3, reveals hedge funds' strategic choice in seeking an entry point to the capital structure of the distressed firm that allows them to have a bigger impact on reorganization. At the general level, hedge funds are more likely to approach distressed firms from the debt side rather than from the equity side, though a higher percentage of them become equity

¹³ The different classes of claims include, for example, tax claims, secured claims, priority non-tax claims, bank loan claims, secured debt claims, unsecured debt claims, worker compensation claims, general unsecured claims, litigation claims, intercompany interests, convenience claims (smaller amount unsecured claims), subordinated claims, equity claims, and warrants and unexercised options.

holders *ex post*. Within the debt category, the most popular entry point for hedge funds is the unsecured debt (Baird and Rasmussen (2008), and Harner (2008a)). This preference is consistent with the argument put forth by recent legal studies (see for example, Lichtenstein and Cheney (2008)) that hedge funds have a strong preference for the so-called “fulcrum” securities in the capital structure, which is the point in the capital structure where the enterprise value only just fails to fully cover the claims. Secured debt is rarely fulcrum. Unsecured debt is thus appealing to hedge funds because of the potential upside gain due to their option-like features and, more importantly, the sensitivity of the value of the securities to their actions.

Moreover, firms with high levels of secured debt are more likely to have under-collateralized secured debt, providing less room for the unsecured creditors and hence less appeal for hedge funds to influence the process through the unsecured creditors committee. In the meantime, given the senior creditors’ weaker incentive to push for liquidation, the potential for reorganization and emergence gives the shareholders more upside potential, which attracts more hedge funds to the equity side.

III. Hedge Fund Presence and Bankruptcy Outcomes

A. Model Specification

This section examines the relation between hedge fund involvement and bankruptcy outcomes as measured by the following eight variables: (i) *Emerge* for the emergence of the firm from bankruptcy (as opposed to being liquidated or acquired); (ii) *Duration* measures the number of months (measured in log) spent in bankruptcy till resolution (including emergence, liquidation, or acquisition); (iii) *LossExclusivity* for the debtor’s loss of its exclusive right to file a plan of reorganization after 180 days in bankruptcy; (iv) and (v) are two variables characterizing distributions to junior claims as a result of APR deviations: *APRCreditor*, as defined in Section I.A.4, for the occurrence of distributions to unsecured creditors before the secured credits are paid in full; and *DistEquity* for distributions made to existing shareholders; (vi) *DebtRecovery* measures the average recovery of all corporate debt (including both secured and unsecured debt) at plan confirmation; and (vii) and (viii) are two variables capturing the incentives and stability of

senior management during the Chapter 11 process: *CEOTurnover* for CEO turnover during the reorganization process and *KERP* for the existence of a key employee retention plan approved by the court. Variables (ii) and (vi) are continuous, while the rest are binary variables. Each table presented below includes a subset of these eight outcome variables that is relevant for the particular role that hedge funds assume.

Needless to say, any relation between hedge fund presence and bankruptcy outcomes could result from the following three elements: (i) a pure selection effect, where informed hedge funds pick the targets that offer the best expected payoff.¹⁴ Moreover, the value of the underlying assets is exogenous to hedge funds' action; (ii) a pure treatment effect, where hedge funds change the outcome and hence the value of the underlying assets even if they were randomly assigned to distressed firms. This is the "average treatment effect" of the full sample; and (iii) a combination of the two, where hedge funds choose cases where they can more effectively drive the outcome in their own favor. However, such outcomes would not materialize without the hedge funds' actions. This is the "average treatment effect on the treated."

A priori all three effects are likely at work. Hedge funds are sophisticated investors who could potentially profit from their company-picking skills even if they remain passive stakeholders. Nevertheless, we believe that our results mostly support the latter two effects because our default measures for hedge fund participation (*HFCreditorsCommittee* and *HFEquityCommittee*) embed their activist roles. If hedge funds can achieve the desired outcome just by picking the right companies without exerting influence during the Chapter 11 process, they should remain passive large stakeholders without the costly and voluntary effort of forming and serving on the committees.

As a large unsecured creditor, a hedge fund can accept or decline the invitation from the U.S. Trustee's Office to join the unsecured creditors committee; as a large shareholder, a hedge fund needs to submit motions to the court in order to form an equity committee. The duties of committee members range from reviewing the debtor's books, monitoring the debtor's business and legal activities, and

¹⁴ See Li and Prabhala (2007) for an overview of self-selection in corporate finance.

recommending a course of action to the holders of the claims they represent. Moreover, their presence on the committees may even infringe on their flexibility in trading claims due to their access to nonpublic material information. Lastly, according to Ayotte and Morrison (2009), the unsecured creditors committees often object to key plan terms, such as the appointment of professionals, DIP loan terms, asset sales, and exclusivity extensions. Therefore, it is implausible that hedge funds would put in such efforts and incur all the costs if they did not intend to actively shape the Chapter 11 process.

Despite the lack of systematic public data sources that describe hedge funds' actual actions in court or in boardrooms, our search of news articles yields anecdotal evidence suggesting that they do actively engage themselves in the process. In addition to the examples referred to in the introduction, two hedge funds (D.E. Shaw and Eton Park Master Fund) in the Allied Holdings case were on the unsecured creditors committee which filed objections to exclusivity extensions. Also, in both the KCS Energy case (where DDJ Capital Management and Turnberry Capital Management were involved) and the Sunbeam case (where Oaktree Capital Management, HBK Investment, and KS Capital Partners were involved), hedge funds on the unsecured creditors committees proposed alternative reorganization plans.¹⁵

To accommodate both the selection and treatment effects, we use the following model:

$$\begin{aligned}
 HFPart_i^* &= X_i\beta + \varepsilon_i, \\
 HFPart_i &= 1 \text{ if } HFPart_i^* > 0; \text{ and } HFPart_i = 0 \text{ if otherwise,} \\
 Outcome_i &= Z_i\gamma + \mu HFPart_i + \eta_i.
 \end{aligned} \tag{1}$$

In the above system, *HFPart* is an indicator variable for hedge funds' participation in various ways as analyzed in Table 4, and *Outcome* is one of the outcome variables defined earlier in this section.

Econometrically a selection problem amounts to a non-zero correlation between the error disturbances of the two equations in (1), that is, $corr(\varepsilon_i, \eta_i) \neq 0$. Consequently, the estimated $\hat{\mu}$ is upward (downward) biased if $corr(\varepsilon_i, \eta_i)$ is positive (negative).

¹⁵ For more detailed stories, see "Allied Holdings Creditors Object to a 5-month Exclusivity Extension," by Marie Beaudette in *Dow Jones Newswires*, April 7, 2006, "KCS Energy/Plan -2: CSFB, Creditors Have Alternative Plan," in *Federal Filings Newswires*, August 15, 2000, "Sunbeam Creditor Committee Wants to Propose Another Plan," in *Associated Press Newswires*, April 18, 2002, respectively.

For the purpose of identification, we need instrumental variables that effectively predict hedge funds' participation but do not affect outcome variables other than through hedge funds. That is, the vector of X in equation (1) must contain variables in addition to a full overlap with the vector of Z . We acknowledge that no firm-level variable is likely to satisfy the exclusion restriction because it is difficult to rule out a firm characteristic that attracts hedge fund participation as a simultaneous determinant of the outcome. Instead, we settle on the following two instrumental variables, both of which capture the conditions of capital supply to distress investing.

The first variable is *DistressHFRet*, which is the lagged return on an index of distress-investing hedge funds using data from CISDM (a hedge fund database available through WRDS). More specifically, we use the monthly average return over the three-month period (before the Chapter 11 filing) and find that our results are not sensitive to the particular estimation window chosen. This variable has explanatory power for hedge fund participation as creditors and shareholders. The second variable is *SP500Ret*, which is the lagged monthly return on the S&P 500 index. To avoid collinearity, we use the residual from regressing the raw *SP500Ret* on *DistressHFRet*. Again, the three-month period (before the Chapter 11 filing) serves as our estimation window to form the lagged return variable. This variable has explanatory power for hedge fund participation as shareholders.

In general, a distressed firm is more likely to have hedge fund involvement if distress-investing hedge funds have been doing well, or if the overall stock market has been doing well, in the recent past before a particular firm's Chapter 11 filing. Because the two variables are recorded at a monthly frequency, they are able to generate cross-sectional variations despite being time-series variables. This is because the average (median) number of firms filing for bankruptcy in the same month during our sample period is low at 3.82 (3). Most importantly, these two variables are unlikely to directly impact the outcome of an individual bankruptcy case due to both the exogeneity of market-wide returns to an individual firm, and the lack of autocorrelation in returns. Even if the market returns close to the confirmation date of a Chapter 11 case may affect its outcome, these returns are virtually uncorrelated

with those earlier returns leading to the particular Chapter 11 filing which occurred, on average, 17 months ago.

Given that most of the outcome variables are binary, we adopt the bivariate probit specification to estimate the joint system of (1). When the outcome variables are continuous (*Duration* and *DebtRecovery*), we resort to the treatment regression method. The key independent variable is *HFPart*, which is measured by *HFCreditorCommittee*, *HFEquityCommittee*, and *HFLT0*; the results are presented in Tables 5-7. We present results both from the simple probit or OLS regression models (without instrumentation for *HFPart*) and from the bivariate probit/treatment regressions (with instrumentation for *HFPart*) for the following reasons. First, we do not view hedge funds' strategic (rather than random) targeting as contradictory to the activist role of hedge funds as long as their actions are impactful on the outcome. For this purpose, we opt to present both the "average treatment effect" and the "average treatment effect on the treated." Second, the presentation of both sets of results facilitates the discussion on the nature of the selection effect due to hedge funds' strategic targeting.

B. Relating Bankruptcy Outcomes to Hedge Fund Presence

B1. Hedge fund presence on the unsecured creditors committee

Table 5 Panel A shows that hedge fund presence on the unsecured creditors committee is positively associated with all seven outcome variables, and the effects are significant (at the 5% level) for emergence, duration, APR deviations for the secured creditors, and the adoption of a KERP. Once the selection effect is controlled for using the bivariate probit model, the coefficient on *HFCreditorsCommittee* in Panel B becomes significant in the outcome equations for the debtor's loss of exclusive rights to file a plan, debt recovery, and CEO turnover, but loses significance in other outcome equations.

[Insert Table 5 here.]

The two panels of Table 5 indicate an interesting combination of investment selection abilities possessed by hedge fund creditors, as well as activist roles they play. As skilled investors, hedge funds

invest in the unsecured debt of distressed firms that are more likely to offer desirable outcomes for that class of claim holders, including emergence (as opposed to liquidation which tends to favor secured creditors), more frequent APR deviations for secured creditors in favor of unsecured creditors, and retention of key employees (to ensure continuity of operation in the going concern and to instill the incentive for recovery¹⁶).

On the other hand, the debtor's loss of exclusive rights to file the reorganization plan after 180 days, higher CEO turnover rates, and higher debt recovery rates appear to be caused by hedge fund actions. The magnitude as well as the significance of *HFCreditorsCommittee* in these three outcome equations is much strengthened in the bivariate probit model in which the selection effect is controlled for. Such a contrast is intuitive given the confrontational nature of the first two outcomes. The incumbent top management of the debtor would most likely resist the loss of exclusivity or their jobs. Hence it is implausible that such outcomes would take place on their own were it not for the hedge funds' persistence. The strong relation between hedge fund presence and debt recovery suggests an overall efficiency gain, which could be accomplished by hedge funds' ability to counter the power of the debtor.

The mean (median) duration is 17 (13) months. The positive association between hedge fund presence on the unsecured creditors committee and case duration has two potential explanations. First, the unsecured creditors committees are usually formed in more complex bankruptcies which take a longer time to resolve. For example, such committees are not usually formed in prepackaged cases. If we include in the regression both hedge fund presence on the unsecured creditors committee and the existence of such a committee, we find that the latter variable overwhelms the former. That is, hedge funds do not lengthen the Chapter 11 process conditional on the formation of an unsecured creditors committee. On the other hand, hedge fund presence on the unsecured creditors committee remains significant in the regressions examining the likelihood of emergence, even when the existence of an

¹⁶ Gilson and Vetsuypens (1993) show that KERP tie managers' pay to creditors' recoveries and the restructuring progress. Also see "Worldcom Judge Approves Plan to Keep Employees," by Rebecca Blumenstein in *Wall Street Journal*, A7, October 30, 2002.

unsecured creditors committee is controlled for. The combination of the results from both emergence and duration indicate that while the unsecured creditors committees are more likely to be formed in more complex cases, hedge fund presence on such committees favors the emergence outcome (which takes a longer time to materialize compared to straight liquidation).

Second, hedge funds' stake in unsecured debt is likely to be a fulcrum security and enjoys a lot of option value, especially when hedge funds participate in cases where the unsecured debt is large relative to the secured (see Table 4). Given that the option value increases with duration, hedge funds may have an incentive to prolong the process.

B2. Hedge fund presence on the equity committee

As we discussed earlier, the equity committees are less common than the committees for unsecured creditors. While 85% of our sample firms form the unsecured creditors committees during the restructuring process, the court appoints the equity committees in only 11% of the cases. Bharath, Panchapegesan, and Werner (2007), while reporting an almost identical overall frequency, document a dwindling trend in the formation of equity committees after 1990. The diminishing role of shareholders in the Chapter 11 process is apparently matched by the rising importance of creditors in the process (Skeel (2003), and Ayotte and Morrison (2009)). However, we note that during the most recent years (2005-2007), hedge funds are present on all equity committees when there is one.

The effects of hedge fund presence on the equity committee, reported in Table 6, share similarities to as well as exhibit differences from those related to their presence on the unsecured creditors committee. Similar to their creditor counterparts, hedge fund equity holders are just as vigilant in pushing out failed CEOs. The effect is significant in both the simple probit model and the bivariate probit model, indicating that hedge funds constitute a strong force ousting CEOs of underperforming companies. This evidence is consistent with the findings of Brav, Jiang, Partnoy, and Thomas (2008) who show that the CEO turnover rate among firms targeted by activist hedge funds doubles the normal level.

Equity holders in bankrupt firms seldom receive payoffs if the firm is liquidated. Hence hedge fund equity holders should target firms that are more likely to survive and should exert their influence to

favor emergence. The evidence from Table 4 that hedge funds are more likely to have a presence on the equity committee in firms with lower leverage and higher profitability speaks to the selection. Table 6 confirms that the coefficient on *HFEquityCommittee* is indeed positive in the outcome equation for *Emerge*. Importantly, the coefficient is significant (at the 10% level) in the bivariate probit model which is supportive of a causal relation.

[Insert Table 6 here.]

The ultimate payoff to the hedge fund equity holders can be summarized by the variable *DistEquity*, which indicates the occurrence of a distribution to the existing shareholders and happens in 21% of the cases. Hedge fund presence on the equity committee is associated with a 43 percentage points increase in the probability of a positive distribution to existing equity holders, controlling for the firm and deal characteristics (not tabulated). The effect is rendered insignificant when the bivariate probit model is employed. Together they offer strong evidence supporting hedge funds' ability to pick stocks of distressed firms with better prospects for existing shareholders, but less evidence for its activist role to make the distribution happen.

We provide two refinements to the analysis on emergence and distribution to equity holders. First, we collect information on the stated purpose in Item 4 of Schedule 13D filings by hedge funds in the bankrupt firms. It turns out that in 21 out of the 50 Schedule 13D filings both before and during Chapter 11, hedge funds state that influencing the restructuring process is their goal, suggesting a strong activist bias in hedge funds' investment in distressed firms. When we include an indicator variable for the stated goal in the probit regression to explain emergence (not tabulated), the new variable is positively associated with the likelihood of emergence (significant at the 10% level). Moreover, the marginal effect associated with this new indicator variable is close to 20 percentage points, which is economically significant as compared to the sample average emergence frequency of 60%.

Second, we find that *HFJoint5%*, in contrast to *HFEquityCommittee*, does not bear a significant relation with *DistEquity* (not tabulated). Such a difference points to the importance of hedge fund actions (through their committee involvement) rather than being mere investors. We also refine the findings of

Bharath, Panchapegesan, and Werner (2007) that the formation of an equity committee is positively associated with APR deviations by clarifying that hedge fund presence on the committee has its effect. Indeed, the coefficient on *HFEquityCommittee* would retain its significance even if the existence of an equity committee is controlled for.

A subset of the sample where we observe stock returns during the Chapter 11 process should directly indicate how hedge fund presence as major equity holders is related to the returns to the existing shareholders. For this purpose, the outcome variable is the abnormal holding period returns from the last trading day prior to the Chapter 11 filing to the date of plan confirmation (or case resolution). We have stock trading prices from before the filing to the plan confirmation date (the holding period) for 298 cases. We also approximate stock returns using information about distribution to common shareholders for another 43 cases. Therefore, we are able to calculate the standardized abnormal monthly return by subtracting the contemporaneous holding period return of the CRSP equal-weighted index—a benchmark commonly adopted in the bankruptcy literature (Dawkins, Bhattacharya, and Bamber (2007))—and then normalizing by the number of months in the Chapter 11 process for a total of 341 cases (*StkRet*).

Table 6 shows that the coefficient on *HFEquityCommittee* is statistically significant (at the 5% or lower levels), and economically large (between 14 to 16 percentage points). These numbers are not necessarily proportional to the returns that hedge funds obtain from their own equity investment because they could buy into the equity at different times during the bankruptcy process. What we show here is that hedge fund participation is associated with more favorable returns to the existing shareholders of the bankrupt firms.

B3. Hedge fund pursuance of loan-to-own

Table 7 examines the relation between hedge fund pursuance of a loan-to-own strategy and Chapter 11 outcomes. The results appear to be a natural blend of those in Tables 5-6, consistent with the hedge funds' dual roles—first as creditors and then as new shareholders. We do not examine emergence in this table because the coding of *HFLT0* favors emergence cases due to the requirement for hedge fund creditors to become shareholders *ex post*.

[Insert Table 7 here.]

Overall, hedge funds aiming at loan-to-own are pro-KERP (significant at the 10% level), and are associated with more distributions to both unsecured creditors (significant at the 1% level) and shareholders (significant at the 5% level). As in Table 5, the effects are significant (at the 1% level) on the debtor's loss of exclusivity, debt recovery, and CEO turnover in the bivariate probit model. All these relations indicate that the loan-to-own players act like unsecured creditors in exerting their influence over management; and at the same time they value continuity by retaining companies' key employees given that they have a relatively long investment horizon in firms that emerge from Chapter 11.

B4. Relations among hedge funds' different roles

Tables 5-7 demonstrate that hedge funds appear to be effective in achieving their intended goals for the role they assume. Given that hedge funds could take different sides as unsecured creditors or shareholders, a natural question arises as to whether hedge funds' influence from one position works against the interests of another class of claim holders. Given the lack of power by shareholders in bankruptcy relative to creditors, it is especially pertinent to analyze the relation between hedge fund presence as creditors and the value implications for existing equity holders. To answer this question, we relate changes in stock prices around the bankruptcy filing to hedge fund involvement on the debt side that is observable at the time. To the extent that equity prices are forward looking, they should incorporate information that is predictive of the effect of hedge funds on future outcomes.

There are 276 cases in our sample where the full set of required information is available. We then separate this event sample into two groups depending on whether there is publicly known hedge fund involvement on the debt side at the time of the Chapter 11 petition: 75 cases have hedge funds listed among the largest unsecured creditors on the petition forms on the day of bankruptcy filing. Figure 1 plots the cumulative abnormal returns (CARs, using the CRSP equal-weighted return as the benchmark) of both groups in the [-10, +10] window where day 0 is the date of the Chapter 11 filing. Though the stock market reacts negatively to bankruptcy filings in general, cases with hedge funds on the debt side fare

much better. Immediately after the petition, the group with hedge funds as the largest unsecured creditors experiences price increases, while the group without hedge fund presence continues with price declines.

[Insert Figure 1 here.]

Table 8 presents the same result using multivariate regressions where the dependent variables are CARs over four different event windows: [-10, +10], [-5, +5], [-1, +5], and [-1, +10]. The key independent variable of interest is hedge fund presence as the largest unsecured creditors (*HFLargestCreditor*), which is the only debt-side participation variable that is known at the time of a bankruptcy filing. We find that the coefficient on this variable is positive and significant in all four regressions, suggesting that the market perceives hedge funds as the largest unsecured creditors to be favorable to the shareholders of Chapter 11 firms. In contrast, almost none of the other control variables seem to explain the cross-sectional variation in CARs. In unreported analysis, we have also examined event windows that are longer and found that the abnormal returns during the short windows do not revert up to six months.

[Insert Table 8 here.]

Results in Table 8 are closely related to our analysis on emergence. Emergence from Chapter 11 is generally good news to equity holders because the APR is most likely upheld in liquidation while the firm as a going-concern leaves some upside potential for shareholders. Given the positive relation between hedge fund creditors and firm emergence, the favorable stock market reaction to hedge fund presence is expected.

B5. Effects of other firm and case characteristics

In addition to the effects of hedge fund involvement on bankruptcy outcomes, Tables 5 to 7 also relate other firm and case characteristics to outcomes, most of which are consistent with the prior literature. Some interesting results regarding the control variables can be summarized as follows. First, high leverage is associated with a higher likelihood of emergence, and high leverage and high return on assets are associated with more frequent adoptions of KERP. These relations indicate that firms with

strong fundamentals but that suffer from financial distress are more likely to emerge from Chapter 11 and to retain their key employees into the future.

Second, higher levels of both cash holdings and secured debt are associated with shorter duration in bankruptcy. While cash provides liquidity, the latter effect might be due to the fact that secured creditors tend to be more concentrated and thus there are fewer conflicts among themselves, which facilitates faster resolution.

Third, cases with a large number of classes of claims favor reorganization. High institutional equity ownership is associated with more frequent adoptions of KERP. The first result might seem counter-intuitive in that having more claim classes tends to make negotiations more difficult, but this is consistent with the general goal of bankruptcy courts to facilitate an outcome that creates the greatest economic gains rather than simply protecting the most senior parties (Harner (2008a)). In cases with a large number of claim classes, liquidation will result in zero distribution to many classes in order to secure payments to the most senior classes. As a result, parties involved are more likely to lean toward reorganization when there are a large number of claim classes. The second result is consistent with institutional shareholders' interests in maintaining continuity in companies' operation.

C. Summary of Hedge Funds' Roles in Bankruptcy

To summarize Tables 5 to 8, we find that hedge funds favor emergence over the alternatives of liquidation or acquisition, even though they tend to participate in more complex cases that take longer to resolve. Our study indicates that hedge funds playing activist roles in distressed companies do not necessarily have as short an investment horizon as the typical hedge fund, which tends to have significantly quicker portfolio turnover than other institutional investors (Agarwal, Fos, and Jiang (2009)). These hedge funds benefit more from companies' emergence where the long-term company prospects are important, and the increasingly popular loan-to-own strategy necessitates their transition to holding long-term stakes in the underlying firm. This phenomenon extends Brav, Jiang, Partnoy, and Thomas' (2008) finding that hedge funds pursuing an activist agenda in under-performing firms have

considerably longer investment horizons than their counterparts that simply trade on securities without any intention to intervene.

Though hedge funds are often perceived as anti-management, our study reveals a more subtle picture where hedge funds could be better described as transforming the traditional “management-driven” restructuring process to a “management neutral” (rather than “creditor control”) one, a trend previously analyzed by Skeel (2003), Harner (2008a), and Ayotte and Morrison (2009). CEO turnover appears to decline over time. The average CEO turnover rate is about 27% for our sample, a number that is lower than the 33% to 75% range reported in earlier studies (see Gilson (1989), Gilson and Vetsuypens (1993), Betker (1995), and Hotchkiss (1995)).¹⁷ Though hedge fund presence is associated with high CEO turnover, they are equally eager to retain key employees through KERP. While only about a quarter of the filings in 1996 had KERP in place, the proportion rose to about half towards the end of our sample period in 2007. This trend is also noted by Bharath, Panchapegesan, and Werner (2007).

The correlation between the adoption of a KERP and CEO turnover among bankrupt firms in our sample is positive (0.15). While it seems counter-intuitive, the positive correlation indicates a common practice of replacing the former leader of a bankrupt company while striving to retain key employees at the same time. The WorldCom case provides such an example. While the company’s CEO (Bernard Ebbers) and CFO (Scott Sullivan) were both forced out, a KERP was approved in order to retain 329 key employees.¹⁸ Hedge funds (including Blue River Capital and Cerberus Capital), who were among the largest unsecured creditors and were also members of the unsecured creditors committee, played an active role in selecting the new CEO of WorldCom and worked with the company management to develop long-term strategic plans.

¹⁷ The average turnover rate of other top executives in the senior management team such as CFOs and COOs is about 35%, showing no time trend over the past decade.

¹⁸ For a more detailed story, see “Worldcom Judge Approves Plan to Keep Employees,” by Rebecca Blumenstein in *Wall Street Journal*, A7, October 30, 2002. Movies Gallery Inc. is another example. Its 2008 10K filings stated that the company “expect[s] to make cash payments during the course of fiscal 2008 of approximately \$13 million for employee retention and severance programs related to changes in our management team and consolidation of certain corporate functions.” On the other hand, the former chairman/CEO/founder, Joe Malugen was replaced by C.J. Gabriel Jr. on May 20, 2008.

Finally, the event study presented in Table 8 shows that hedge funds' influence as creditors does not come at the expense of shareholders. The fact that their presence greatly benefits the current shareholders is a strong indication that they successfully offset the power of secured creditors, which benefits all junior claim holders. Moreover, among a subset of sample firms in which secured debt is minimal (i.e., below 5% or 10% of assets), the positive relation between stock price reaction and hedge fund presence as large unsecured creditors remains. Such evidence, combined with the positive relation between hedge fund presence and debt recovery (as shown in Table 5), offers support to the hypothesis that hedge funds enhance the overall value of firms in Chapter 11. They apparently achieve this by alleviating financial constraints, reducing the frequency of inefficient liquidation, and mitigating conflicts among different classes of claims. Our result is consistent with Hotchkiss and Mooradian (1997) who show a positive stock price reaction to purchases of public debt by vulture investors, and supports the conclusion by Goldschmid (2005) that distressed debt investors "are more like phoenix than vulture" as they add value to the restructuring process.

In unreported analyses, we also examine the role of hedge funds in post-emergence firm performance. We find that hedge fund presence in Chapter 11 is positively associated with reduced leverage (measured as the change in leverage between the time of bankruptcy filing and one year after emergence), but do not find a significant relation with respect to *ex post* operating performance (such as industry-adjusted return on assets). Moreover, firms with hedge fund involvement in their reorganization are no more likely to fail again (i.e., "Chapter 22"), despite the significantly higher probability of emergence in the first place. The combination of results suggests that hedge fund involvement is most conducive to reducing financial constraints faced by the distressed firms. Such a pattern is consistent with the practitioners' view about hedge funds picking firms with "good fundamentals" but "bad balance sheets," and echoes the results in Table 5 which show that firms that emerge tend to be those with strong operating performance but suffering from financial distress.

IV. Conclusion

Using a comprehensive sample of Chapter 11 firms from 1996 to 2007, this study documents the prevalence of hedge funds in the restructuring process, and demonstrates their activist role in shaping bankruptcy outcomes. We find that hedge fund presence is associated with a higher probability of the debtor's loss of exclusive rights to file a reorganization plan, a higher probability of emergence, more favorable distributions to the claims they invest in, more CEO turnovers, and more frequent adoptions of KERP. We further establish the causal effects of hedge funds, especially in their role as creditors, through proper estimation of both the selection and treatment effects. Finally, we show that the favorable outcomes for claims in which hedge funds invest do not come at the expense of other claimholders—they are more likely to result from value creation by alleviating financial constraints and mitigating conflicts among different classes of claims.

Appendix:**Top Hedge Fund Players in Chapter 11 by Categories**

| Rank | Largest unsecured creditors | Unsecured creditors committee | DIP financing |
|------|---------------------------------|--------------------------------------|---------------------------------------|
| 1 | Oaktree Capital Management, LLC | Oaktree Capital Management, LLC | Cerberus Capital Management |
| 2 | Appaloosa Management, LP | PPM America Special Investments Fund | Silver Point Capital Group, LP |
| 3 | Apollo Advisors, LP | Cerberus Capital Management | Black Diamond Capital Management, LLC |
| 4 | Cerberus Capital Management | Appaloosa Management, LP | DDJ Capital Management, LLC |
| 5 | Loomis Sayles & Co., LP | Loomis Sayles & Co., LP | Oaktree Capital Management, LLC |

| Rank | Largest shareholders/ 13D filing before bankruptcy | Equity committee/ 13D filing during bankruptcy | Overall Ranking |
|------|--|--|--------------------------------------|
| 1 | Bain Capital Funds | Harbinger Capital Partners Master Fund | Oaktree Capital Management LLC |
| 2 | Loomis Sayles & Co., LP | Xerion Capital Partners, LLC | Cerberus Capital Management |
| 3 | Oaktree Capital Management, LLC | Lonestar Partners, LP | Loomis Sayles & Co., LP |
| 4 | Rutabaga Capital Management, LLC | Appaloosa Management, LP | Appaloosa Management, LP |
| 5 | Warburg, Pincus Ventures, LP | Prescott Group Capital Mgmt | PPM America Special Investments Fund |

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Figure 1: Event study around Chapter 11 filing

This figure shows the cumulative abnormal returns (CARs, adjusted by the CRSP equal-weighted index) from the ten days prior to the ten days after a Chapter 11 filing. The solid line represents CARs for cases with at least one hedge fund listed as the largest unsecured creditor. The dashed line represents CARs for cases without any hedge fund listed as the largest unsecured creditor.

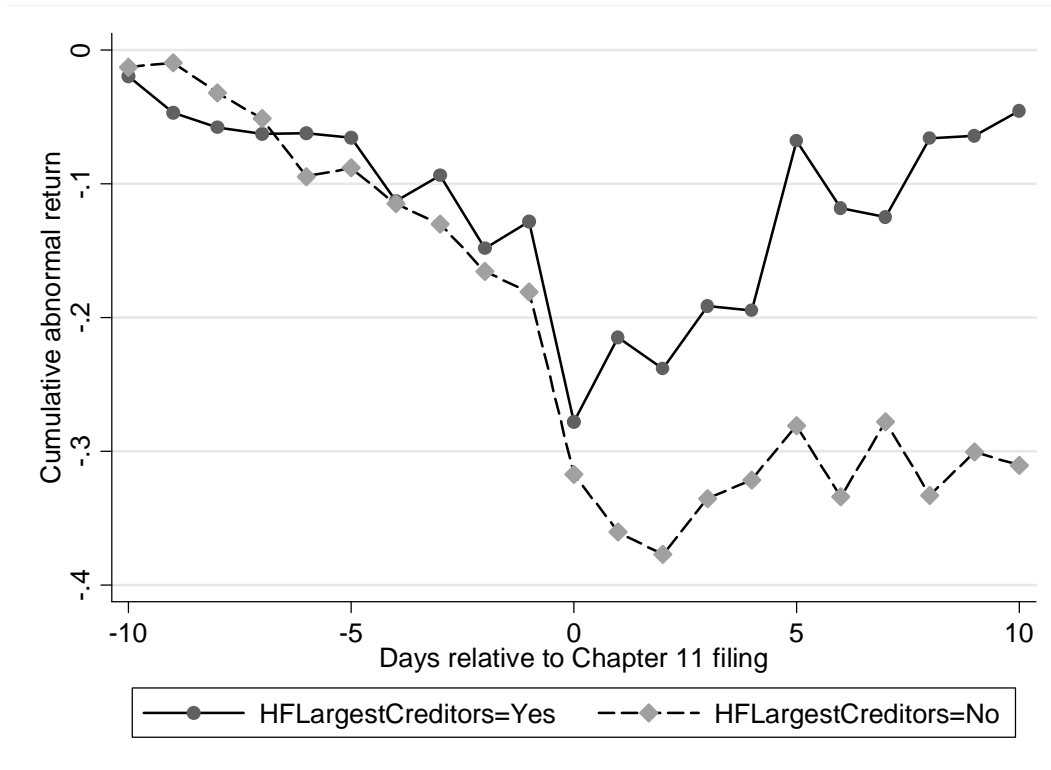


Table 1: Variable definitions

| Variable | Definition | Data Source |
|--|--|--|
| <u>Firm Characteristics</u> | | |
| Assets | Book assets measured in 2008 dollars. | Bankruptcy Research Database, BankruptcyData.com, Compustat |
| Sales | Sales measured in 2008 dollars. | Bankruptcy Research Database, BankruptcyData.com, Compustat |
| Leverage | The ratio of total liabilities to book assets. | Compustat, EDGAR (10Ks), BankruptcyData.com |
| Cash | The ratio of cash and short-term investments to book assets. | Compustat, EDGAR (10Ks), BankruptcyData.com |
| Tangibility | The ratio of net PP&E to book assets. | Compustat, EDGAR (10Ks), BankruptcyData.com |
| ROA | The ratio of EBITDA to book assets. | Compustat, EDGAR (10Ks), BankruptcyData.com |
| SecuredDebt | The ratio of secured debt to book assets. | Capital IQ, BankruptcyData.com, Compustat |
| Institution | Percentage of institutional ownership. | Thomson Reuters Ownership Database (13Fs) |
| NumClasses | Number of claim classes. | Bankruptcy Plans |
| <u>Bankruptcy Case Characteristics</u> | | |
| Prepack | An indicator variable takes a value of one if a bankruptcy is prepackaged or prenegotiated. According to the definition by LoPucki, a case is prepackaged if the debtor drafted the plan, submitted to a vote of the impaired classes, and claimed to have obtained the acceptance necessary for consensual confirmation before filing. On the other hand, if the debtor negotiates the plan with less than all groups or obtains the acceptance of less than all groups necessary to confirm before the bankruptcy case is filed, then the case is regarded as prenegotiated. | Bankruptcy Research Database, BankruptcyData.com, Bankruptcy Plans |
| Delaware | An indicator variable takes a value of one if a bankruptcy case is filed in the state of Delaware. | Bankruptcy Research Database, BankruptcyData.com |
| LossExclusivity | An indicator variable takes a value of one if the debtor loses its exclusive right to file a plan of reorganization after 180 days in bankruptcy. | Bankruptcydata.com and Factiva |
| DIP | An indicator variable takes a value of one if the bankrupt firm receives court approval of debtor-in-possession (DIP) financing. | BankruptcyData.com, Bankruptcy DataSource, Bankruptcy Plans, LexisNexis, Factiva |
| KERP | An indicator variable takes a value of one if a key employee retention plan is approved by the court. | BankruptcyData.com, Bankruptcy DataSource, Bankruptcy Plans, LexisNexis, Factiva |
| CreditorsCommittee | An indicator variable takes a value of one if an unsecured creditors committee is appointed by the court. | BankruptcyData.com, LexisNexis, Factiva |
| EquityCommittee | An indicator variable takes a value of one if an equity committee is appointed by the court. | BankruptcyData.com, LexisNexis, Factiva |
| CEOTurnover | An indicator variable takes a value of one if the CEO of a bankrupt firm is replaced during the Chapter 11 restructuring. | BankruptcyData.com, LexisNexis, Factiva, EDGAR (Proxy Statements and 10Ks) |

| Variable | Definition | Data Source |
|----------------------------|--|---|
| Emerge | An indicator variable takes a value of one if the bankrupt firm emerges from bankruptcy. | Bankruptcy Research Database, BankruptcyData.com |
| Liquidated | An indicator variable takes a value of one if the bankrupt firm is liquidated (liquidation in Chapter 11 or conversion to Chapter 7). | Bankruptcy Research Database, BankruptcyData.com |
| Duration | Number of months in bankruptcy, from the date of filing to the date of plan confirmation. | Bankruptcy Research Database, BankruptcyData.com |
| APRCreditor | An indicator variable takes a value of one if there is an APR deviation for secured creditors, which occurs when unsecured debt holders receive a distribution before secured lenders are paid in full. | BankruptcyData.com, EDGAR (8K), Bankruptcy Courts |
| DistEquity | An indicator variable takes a value of one if equity holders receive payoffs either through APR deviation or retaining pre-Chapter 11 shares. | BankruptcyData.com, EDGAR (8K), Bankruptcy Courts |
| DebtRecovery | Average recovery of all corporate debt (including both secure and unsecured debt) at plan confirmation. | BankruptcyData.com, EDGAR (8K), Bankruptcy Courts, CRSP, Bloomberg, Datastream |
| StkRet | Standardized abnormal monthly return, constructed by subtracting the contemporaneous holding period return of CRSP equal-weighted index from holding period return for Chapter 11 stocks from two days before filing to plan confirmation, normalized by the number of months in the Chapter 11 process. | CRSP, Bloomberg, Datastream |
| CAR[a,b] | CRSP equal-weighted index adjusted cumulative abnormal returns from a days before bankruptcy filing to b days after filing. | CRSP, Bloomberg, Datastream |
| <u>Hedge Fund Presence</u> | | |
| HFCreditorsCommittee | An indicator variable takes a value of one if at least one hedge fund is on the unsecured creditors committee. | BankruptcyData.com, LexisNexis, Factiva |
| HFLargestCreditors | An indicator variable takes a value of one if at least one hedge fund is one of the largest unsecured creditors as listed on the Chapter 11 petition forms. | BankruptcyData.com, LexisNexis, Factiva |
| HFEquityCommittee | An indicator variable takes a value of one if at least one hedge fund is on the equity committee. | BankruptcyData.com, LexisNexis, Factiva |
| HFJoint5% | An indicator variable takes a value of one if the total equity ownership by all hedge funds is at least 5%. | Thomson Reuters Ownership Database (13Fs), EDGAR (13Ds, Proxy Statements, 10Ks) |
| HFLTO | An indicator variable takes a value of one if at least one hedge fund appears to be a loan-to-own (LTO) player. A hedge fund is a LTO player if hedge funds identified from a list of the largest unsecured creditors and official unsecured creditors committee and they are matched to 13D and 13F filings within one year after bankruptcy, or bankruptcy reorganization plans confirmed by the court show the classes of claims held by hedge funds receive equity distribution. | BankruptcyData.com, Bankruptcy DataSource, Bankruptcy Plans, LexisNexis, Factiva, Thomson Reuters Ownership Database (13Fs), EDGAR (13Ds, Proxy Statements, 10Ks) |
| HFLTO_DIP | An indicator variable takes a value of one if at least one hedge fund appears to be a loan-to-own (LTO) player or at least one hedge fund is among the providers of DIP financing. | BankruptcyData.com, Bankruptcy DataSource, Bankruptcy Plans, LexisNexis, Factiva, Thomson Reuters Ownership Database (13Fs), EDGAR (13Ds, Proxy Statements, 10Ks) |

Table 2: Summary of Chapter 11 cases

This table presents summary statistics of the main firm and case characteristics variables. Panel A reports bankruptcy case characteristics by year. Numbers presented are in percentages except for duration. Panel B presents summary statistics of key control variables. Definitions of the variables are provided in Table 1.

Panel A: Bankruptcy case characteristics by year

| Filing Year | # cases | Loss Exclusivity | DIP | KERP | Creditors Committee | Equity Committee | CEO Turnover | Emerge | Liquidated | Duration (months) | APR Creditor | Dist Equity | Debt Recovery |
|-------------|---------|------------------|------|------|---------------------|------------------|--------------|--------|------------|-------------------|--------------|-------------|---------------|
| 1996 | 15 | 13.3 | 73.3 | 26.7 | 73.3 | 6.7 | 60.0 | 40.0 | 46.7 | 20.5 | 13.3 | 33.3 | 56.8 |
| 1997 | 17 | 11.8 | 70.6 | 29.4 | 70.6 | 5.9 | 29.4 | 76.5 | 11.8 | 21.0 | 0.0 | 17.6 | 70.4 |
| 1998 | 31 | 16.1 | 64.5 | 29.0 | 90.3 | 16.1 | 30.0 | 71.0 | 22.6 | 17.0 | 9.7 | 19.4 | 49.4 |
| 1999 | 42 | 19.1 | 69.0 | 40.5 | 81.0 | 14.3 | 39.0 | 54.8 | 31.0 | 19.0 | 14.3 | 33.3 | 64.8 |
| 2000 | 77 | 19.5 | 62.3 | 28.6 | 88.3 | 6.5 | 23.4 | 55.8 | 32.5 | 20.6 | 20.8 | 14.3 | 48.6 |
| 2001 | 88 | 17.0 | 53.4 | 38.6 | 81.8 | 8.0 | 18.1 | 47.7 | 42.0 | 17.6 | 19.3 | 18.2 | 41.8 |
| 2002 | 80 | 21.3 | 57.5 | 40.0 | 83.8 | 8.8 | 18.3 | 58.8 | 25.0 | 14.1 | 21.3 | 20.0 | 46.8 |
| 2003 | 50 | 26.0 | 60.0 | 54.0 | 100.0 | 14.0 | 30.0 | 68.0 | 24.0 | 15.9 | 10.0 | 20.0 | 52.3 |
| 2004 | 28 | 35.7 | 78.6 | 57.1 | 82.1 | 17.9 | 21.4 | 85.7 | 14.3 | 11.6 | 3.6 | 28.6 | 58.0 |
| 2005 | 23 | 26.1 | 78.3 | 60.9 | 91.3 | 13.0 | 50.0 | 69.6 | 21.7 | 14.7 | 4.3 | 13.0 | 56.6 |
| 2006 | 13 | 7.7 | 84.6 | 46.2 | 84.6 | 38.5 | 23.1 | 84.6 | 15.4 | 11.4 | 15.4 | 38.5 | 65.1 |
| 2007 | 10 | 0.0 | 70.0 | 50.0 | 70.0 | 10.0 | 20.0 | 50.0 | 50.0 | 8.4 | 0.0 | 20.0 | 43.9 |
| All | 474 | 19.8 | 63.7 | 40.3 | 85.2 | 11.2 | 26.7 | 60.3 | 29.3 | 16.8 | 14.8 | 20.9 | 51.5 |

Panel B: Summary statistics of key control variables

| Firm/Case Characteristics | N | Mean | SD | Min | 25th | Median | 75th | Max |
|---------------------------|-----|-------|-------|--------|--------|--------|-------|--------|
| Assets | 474 | 2718 | 8975 | 220 | 424 | 706 | 1686 | 124363 |
| Sales | 474 | 1901 | 6914 | 0 | 323 | 615 | 1324 | 122787 |
| Leverage | 474 | 0.997 | 0.390 | 0.254 | 0.767 | 0.919 | 1.129 | 2.707 |
| Cash | 473 | 0.068 | 0.097 | 0 | 0.011 | 0.03 | 0.082 | 0.513 |
| Tangibility | 474 | 0.358 | 0.240 | 0 | 0.150 | 0.339 | 0.527 | 0.896 |
| ROA | 473 | 0.010 | 0.164 | -1.073 | -0.026 | 0.043 | 0.093 | 0.297 |
| SecuredDebt | 466 | 0.296 | 0.488 | 0 | 0.034 | 0.226 | 0.426 | 8.777 |
| Institution | 474 | 0.278 | 0.254 | 0 | 0.018 | 0.239 | 0.435 | 1 |
| NumClasses | 414 | 9 | 3.118 | 3 | 7 | 9 | 10 | 27 |
| Prepack | 474 | 0.293 | 0.456 | 0 | 0 | 0 | 1 | 1 |
| Delaware | 474 | 0.43 | 0.496 | 0 | 0 | 0 | 1 | 1 |

Table 3: Hedge fund presence in Chapter 11 by year

This table presents an overview of hedge fund presence in Chapter 11. Definitions of the variables are provided in Table 1. The numbers presented are in percentages.

| Filing Year | # cases | HF presence before bankruptcy | | | HF presence during bankruptcy | | | | Both before and during bankruptcy | | | | Overall |
|-------------|---------|-------------------------------|----------------------|------------|-------------------------------|---------------|------------|------------------|-----------------------------------|-----------------|-----------|-------------|---------|
| | | Largest creditors | Largest shareholders | 13D filing | Unsecured creditors committee | DIP financing | 13D filing | Equity committee | Loan-to-own | Loan-to-own_DIP | Debt side | Equity side | |
| 1996 | 15 | 16.7 | 27.3 | 0.0 | 30.8 | 0.0 | 6.7 | 6.7 | 28.6 | 28.6 | 46.2 | 36.4 | 72.7 |
| 1997 | 17 | 7.7 | 42.9 | 17.6 | 40.0 | 11.8 | 0.0 | 0.0 | 17.6 | 23.5 | 66.7 | 42.9 | 78.6 |
| 1998 | 31 | 32.0 | 48.4 | 9.7 | 40.7 | 0.0 | 3.2 | 9.7 | 20.0 | 20.0 | 60.0 | 58.1 | 92.9 |
| 1999 | 42 | 39.5 | 50.0 | 4.8 | 50.0 | 4.8 | 0.0 | 2.4 | 35.6 | 39.0 | 64.9 | 52.5 | 83.8 |
| 2000 | 77 | 33.3 | 55.4 | 5.2 | 30.9 | 5.2 | 3.9 | 0.0 | 24.6 | 30.0 | 58.5 | 56.0 | 89.2 |
| 2001 | 88 | 11.3 | 44.7 | 5.7 | 29.4 | 3.4 | 2.3 | 3.5 | 18.5 | 20.0 | 51.2 | 48.2 | 88.3 |
| 2002 | 80 | 28.3 | 47.4 | 2.5 | 43.5 | 7.5 | 3.8 | 3.8 | 33.3 | 34.9 | 64.2 | 50.0 | 86.9 |
| 2003 | 50 | 20.9 | 50.0 | 8.0 | 47.6 | 12.0 | 2.0 | 10.2 | 34.0 | 38.3 | 66.7 | 59.2 | 89.1 |
| 2004 | 28 | 29.6 | 25.0 | 14.3 | 48.1 | 21.4 | 7.1 | 7.4 | 42.9 | 46.4 | 67.9 | 35.7 | 85.7 |
| 2005 | 23 | 21.7 | 59.1 | 13.0 | 40.9 | 21.7 | 17.4 | 13.0 | 30.4 | 39.1 | 59.1 | 73.9 | 91.3 |
| 2006 | 13 | 30.8 | 61.5 | 7.7 | 38.5 | 38.5 | 30.8 | 38.5 | 23.1 | 38.5 | 76.9 | 69.2 | 84.6 |
| 2007 | 10 | 0.0 | 80.0 | 20.0 | 20.0 | 20.0 | 0.0 | 10.0 | 0.0 | 10.0 | 30.0 | 80.0 | 90.0 |
| All | 474 | 25.1 | 48.5 | 7.0 | 39.5 | 8.6 | 4.4 | 5.8 | 27.7 | 31.2 | 60.7 | 53.4 | 87.4 |

Table 4: Predicting hedge fund presence in Chapter 11

Definitions of all variables are provided in Table 1. Panel A presents pairwise correlation matrix, where the numbers in parentheses are P-values. The models in Panel B are estimated by probit, where the numbers in brackets are standard errors. Superscripts ***, **, * correspond to statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Pairwise correlation matrix

| | HFCreditors Committee | HFLargest Creditors | HFEquity Committee | HFJoint5% | HFLTO | HFLTO_DIP | Assets | Sales | Leverage | Cash | Tangibility | ROA | SecuredDebt | Institution | NumClasses | Prepack |
|--------------------|--------------------------|------------------------|-----------------------|---------------------|---------------------|--------------------|-------------------|-------------------|---------------------|-------------------|---------------------|--------------------|---------------------|---------------------|---------------------|--------------------|
| HFLargestCreditors | 0.1854 [0.0009] | | | | | | | | | | | | | | | |
| HFEquityCommittee | 0.0711 [0.1721] | 0.0133 [0.8014] | | | | | | | | | | | | | | |
| HFJoint5% | -0.0666 [0.2073] | -0.0768 [0.1496] | 0.0235 [0.6194] | | | | | | | | | | | | | |
| HFLTO | 0.5521 [0.0000] | 0.294 [0.0000] | 0.0541 [0.2701] | -0.0806 [0.1047] | | | | | | | | | | | | |
| HFLTO_DIP | 0.4628 [0.0000] | 0.2628 [0.0000] | 0.0753 [0.1245] | -0.0263 [0.5972] | 0.8562 [0.0000] | | | | | | | | | | | |
| Assets | 0.1193 [0.0209] | 0.0215 [0.6808] | 0.0896 [0.0529] | 0.0018 [0.9693] | 0.1131 [0.0200] | 0.1152 [0.0178] | | | | | | | | | | |
| Sales | 0.1018 [0.0490] | -0.0454 [0.3860] | 0.0704 [0.1290] | -0.0824 [0.0794] | 0.063 [0.1958] | 0.0396 [0.4168] | 0.669 [0.0000] | | | | | | | | | |
| Leverage | -0.0012 [0.9822] | -0.0364 [0.4875] | -0.1045 [0.0239] | 0.0371 [0.4297] | 0.0817 [0.0932] | 0.0975 [0.0450] | -0.1 [0.0359] | -0.08 [0.0797] | | | | | | | | |
| Cash | 0.0965 [0.0622] | 0.0191 [0.7153] | -0.0522 [0.2605] | 0.0768 [0.1021] | -0.0514 [0.2922] | -0.043 [0.3824] | 0.026 [0.5689] | -0.06 [0.1711] | 0.0344 [0.4559] | | | | | | | |
| Tangibility | 0.0536 [0.3001] | 0.0088 [0.8671] | -0.0553 [0.2328] | -0.0037 [0.9371] | 0.0999 [0.0399] | 0.0691 [0.1557] | -0.03 [0.5607] | -0.02 [0.6133] | 0.1522 [0.0009] | -0.09 [0.0487] | | | | | | |
| ROA | 0.0004 [0.9931] | 0.0158 [0.7638] | 0.0566 [0.2227] | 0.0263 [0.5768] | 0.056 [0.2506] | 0.0669 [0.1700] | 0.03 [0.5096] | 0.06 [0.2106] | -0.0866 [0.0599] | -0.38 [0.0000] | 0.0217 [0.6377] | | | | | |
| SecuredDebt | -0.1197 [0.0214] | 0.0555 [0.2928] | -0.0313 [0.5029] | 0.0268 [0.5724] | 0.0295 [0.5481] | 0.029 [0.5550] | -0.06 [0.2194] | -0.06 [0.1943] | 0.2253 [0.0000] | -0.09 [0.0521] | 0.0905 [0.0508] | 0.0398 [0.3915] | | | | |
| Institution | 0.0447 [0.3880] | 0.0232 [0.6573] | 0.2266 [0.0000] | 0.1663 [0.0004] | 0.0396 [0.4160] | 0.092 [0.0587] | 0.134 [0.0036] | 0.12 [0.0077] | -0.1612 [0.0004] | 0.049 [0.2856] | 0.0026 [0.9551] | 0.0731 [0.1126] | -0.0961 [0.0381] | | | |
| NumClasses | 0.0844 [0.1220] | 0.0571 [0.3058] | 0.0623 [0.2090] | -0.0866 [0.0854] | 0.2323 [0.0000] | 0.2094 [0.000] | 0.226 [0.0000] | 0.16 [0.0009] | 0.0325 [0.5101] | -0.09 [0.0745] | 0.1435 [0.0034] | 0.1124 [0.0222] | 0.0268 [0.5871] | 0.1022 [0.0377] | | |
| Prepack | -0.0733 [0.1566] | 0.0665 [0.2034] | -0.0007 [0.9874] | 0.0492 [0.2952] | 0.1311 [0.0070] | 0.1156 [0.0174] | -0.04 [0.3678] | -0.07 [0.1128] | 0.2533 [0.0000] | 2E-04 [0.9959] | -0.031 [0.5004] | 0.0958 [0.0374] | 0.0321 [0.4892] | -0.1121 [0.0146] | 0.0326 [0.5086] | |
| Delaware | -0.0944 [0.0678] | 0.0331 [0.5275] | -0.0486 [0.2949] | 0.0744 [0.1133] | -0.0322 [0.5087] | 0.0078 [0.8724] | -0.11 [0.0155] | -0.08 [0.0695] | 0.0313 [0.4968] | -0.06 [0.1702] | -0.0888 [0.0535] | 0.018 [0.6959] | -0.0221 [0.6335] | -0.0594 [0.1968] | -0.1275 [0.0094] | 0.0672 [0.1442] |

Panel B: Probit regressions

| | Debt side | | Equity side | | Loan-to-own | |
|-----------------------|-----------------------------|---------------------------|--------------------------|-----------------------|------------------------|------------------------|
| | (1) HFCreditorsCommittee | (2) HFLargestCreditors | (3) HFEquityCommittee | (4) HFJoint5% | (5) HFLTO | (6) HFLTO_DIP |
| Ln(Assets) | 0.1628** [0.0642] | -0.0832 [0.0666] | 0.1043 [0.0845] | -0.0745 [0.0605] | 0.1678*** [0.0643] | 0.1046** [0.0619] |
| Leverage | 0.2418 [0.2096] | -0.257 [0.2194] | -0.8572** [0.4394] | -0.0389 [0.1777] | 0.3615* [0.2041] | 0.4286** [0.1958] |
| Cash | 1.5380** [0.7839] | 0.4122 [0.7738] | -1.8514 [1.6089] | 1.5180** [0.6986] | -0.9094 [0.8637] | -0.5701 [0.7766] |
| Tangibility | 0.2859 [0.2943] | 0.0866 [0.3040] | -0.4856 [0.4516] | 0.0201 [0.2672] | 0.4755 [0.2949] | 0.2821 [0.2833] |
| ROA | 0.8276 [0.5933] | 0.0628 [0.6213] | 0.5395 [0.9783] | 0.7594* [0.4550] | 0.1129 [0.5853] | 0.3008 [0.5556] |
| SecuredDebt | -0.6696** [0.2885] | -0.0712 [0.2898] | 0.3111 [0.4281] | 0.5780** [0.2353] | -0.5259** [0.2718] | -0.4343* [0.2600] |
| Institution | -0.1972 [0.2824] | 0.1146 [0.2955] | 1.4744*** [0.4128] | 1.1034*** [0.2645] | -0.1059 [0.2883] | 0.3121 [0.2728] |
| NumClasses | 0.0119 [0.0240] | 0.0364 [0.0254] | 0.0131 [0.0359] | -0.0423* [0.0226] | 0.0822*** [0.0255] | 0.0747*** [0.0248] |
| Prepack | -0.2014 [0.1544] | 0.2195 [0.1639] | 0.2169 [0.2405] | 0.1516 [0.1394] | 0.3751** [0.1508] | 0.2808** [0.1464] |
| Delaware | -0.1695 [0.1378] | 0.1289 [0.1473] | -0.1538 [0.2183] | 0.1937 [0.1249] | 0.0375 [0.1395] | 0.1385 [0.1331] |
| Constant | -1.5898*** [0.5026] | -0.3706 [0.5288] | -2.0200*** [0.6907] | 0.1957 [0.4532] | -2.9569*** [0.5238] | -2.4240*** [0.4962] |
| # cases | 369 | 361 | 459 | 447 | 416 | 416 |
| Pseudo R ² | 0.0502 | 0.0159 | 0.1481 | 0.0582 | 0.0867 | 0.0766 |

Table 5: Hedge funds on unsecured creditors committee

Definitions of all variables are provided in Table 1. The numbers in brackets are standard errors. Superscripts ***, **, * correspond to statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Probit and OLS regressions

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---------------------------------------|------------------------|------------------------|------------------------|------------------------|-----------------------|------------------------|------------------------|
| | Probit | OLS | Probit | Probit | OLS | Probit | Probit |
| | Emerge | Duration | LossExclusivity | APRCreditor | DebtRecovery | CEOTurnover | KERP |
| HFCreditorsCommittee | 0.3731** [0.1606] | 0.1734** [0.0813] | 0.2594 [0.1718] | 0.3791** [0.1853] | 0.0107 [0.0367] | 0.1579 [0.1520] | 0.3242** [0.1515] |
| Ln(Assets) | 0.0226 [0.0721] | 0.031 [0.0364] | -0.4735*** [0.1002] | 0.0347 [0.0811] | -0.0199 [0.0167] | 0.1401** [0.0658] | 0.2702*** [0.0710] |
| Leverage | 0.8935*** [0.2891] | -0.1329 [0.1182] | 0.0065 [0.2311] | -0.5919* [0.3024] | -0.0233 [0.0525] | 0.0552 [0.2375] | 0.4530** [0.2247] |
| Cash | -1.7118** [0.8632] | -0.9197** [0.4440] | -0.4554 [0.9609] | -0.1267 [1.0442] | 0.2041 [0.2107] | -1.9051** [0.9092] | 0.1776 [0.8807] |
| Tangibility | 0.1624 [0.3369] | -0.2132 [0.1672] | 0.5388 [0.3499] | -1.3306*** [0.4110] | 0.2077*** [0.0743] | -0.2417 [0.3190] | -0.416 [0.3212] |
| ROA | 0.1673 [0.6632] | 0.0192 [0.3348] | -0.1383 [0.6536] | -0.0659 [0.8970] | 0.3273** [0.1488] | -0.2221 [0.6207] | 1.6449** [0.7030] |
| SecuredDebt | 0.0551 [0.3604] | -0.2637 [0.1610] | -0.319 [0.3400] | 1.8472*** [0.3746] | -0.01 [0.0701] | -0.3254 [0.3238] | 0.1705 [0.3088] |
| Institution | 0.1209 [0.3190] | 0.1489 [0.1602] | 0.3563 [0.3434] | -0.0878 [0.3659] | 0.0921 [0.0709] | 0.4485 [0.2884] | 0.6996** [0.3027] |
| NumClasses | 0.1488*** [0.0331] | 0.0242* [0.0138] | -0.0035 [0.0289] | 0.0731** [0.0313] | 0.0057 [0.0061] | -0.0007 [0.0257] | 0.0383 [0.0260] |
| Prepack | 1.2300*** [0.1944] | -1.2278*** [0.0873] | -0.0893 [0.1814] | 0.3252* [0.1920] | 0.1947*** [0.0382] | -0.3570** [0.1707] | -1.2118*** [0.1777] |
| Delaware | -0.2971* [0.1555] | -0.0882 [0.0787] | -0.3556** [0.1661] | 0.0645* 0.2372 | -0.02 [0.0354] | -0.0103 [0.1487] | 0.0996 [0.1498] |
| Constant | -2.2290*** [0.5937] | 2.5879*** [0.2834] | 2.1923*** [0.6878] | [0.1808] -1.9179*** | 0.4485*** [0.1299] | -1.4391*** [0.5220] | -2.8293*** [0.5558] |
| # cases | 369 | 369 | 369 | 369 | 321 | 362 | 369 |
| Pseudo R ² /R ² | 0.2416 | 0.4491 | 0.1116 | 0.1538 | 0.1311 | 0.062 | 0.2181 |

Panel B: Bivariate probit and treatment regressions

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|----------------------|----------------------------|------------------------|-------------------------------------|---------------------------------|---------------------------|---------------------------------|--------------------------|
| | Bivariate Probit Emerge | Treatment Duration | Bivariate Probit LossExclusivity | Bivariate Probit APRCreditor | Treatment DebtRecovery | Bivariate Probit CEOTurnover | Bivariate Probit KERP |
| HFCreditorsCommittee | 0.7788 [1.0561] | 0.3652 [0.4897] | 1.8840*** [0.1095] | 0.7431 [1.1478] | 0.4998*** [0.1414] | 1.3058*** [0.3789] | -0.0846 [1.0362] |
| Ln(Assets) | -0.0037 [0.1001] | 0.0193 [0.0465] | -0.3633*** [0.0710] | 0.0113 [0.1100] | -0.0594** [0.0232] | 0.0461 [0.0736] | 0.2901*** [0.0794] |
| Leverage | 0.8375** [0.3465] | -0.1498 [0.1247] | -0.1792 [0.1822] | -0.6155** [0.3033] | -0.0668 [0.0657] | -0.0572 [0.2224] | 0.4803** [0.2273] |
| Cash | -1.9176** [0.9656] | -1.0297** [0.5201] | -1.3337* [0.7445] | -0.325 [1.2052] | -0.155 [0.2775] | -2.2472*** [0.8240] | 0.4036 [1.0389] |
| Tangibility | 0.1175 [0.3569] | -0.2338 [0.1736] | 0.0175 [0.2684] | -1.3518*** [0.4069] | 0.1667* [0.0922] | -0.3313 [0.2951] | -0.3649 [0.3515] |
| ROA | 0.0347 [0.7478] | -0.0399 [0.3637] | -0.7351 [0.5443] | -0.1694 [0.9450] | 0.158 [0.1890] | -0.4925 [0.5837] | 1.7395** [0.7125] |
| SecuredDebt | 0.153 [0.4405] | -0.2171 [0.1981] | 0.2653 [0.2653] | 1.9085*** [0.3864] | 0.088 [0.0904] | -0.0134 [0.3238] | 0.0668 [0.4068] |
| Institution | 0.1485 [0.3223] | 0.1622 [0.1623] | 0.3743 [0.2662] | -0.0597 [0.3752] | 0.1433 [0.0885] | 0.4584* [0.2699] | 0.6539* [0.3356] |
| NumClasses | 0.1439*** [0.0388] | 0.0233* [0.0138] | -0.007 [0.0218] | 0.0703** [0.0335] | 0.0054 [0.0075] | -0.0068 [0.0238] | 0.0396 [0.0258] |
| Prepack | 1.2341*** [0.1989] | -1.2143*** [0.0930] | 0.0907 [0.1385] | 0.3472* [0.1972] | 0.2441*** [0.0490] | -0.2181 [0.1706] | -1.2197*** [0.1803] |
| Delaware | -0.2644 [0.1843] | -0.076 [0.0839] | -0.1104 [0.1279] | 0.257 [0.1860] | 0.0189 [0.0448] | 0.0696 [0.1396] | 0.0715 [0.1666] |
| Constant | -2.1378*** [0.6893] | 2.6069*** [0.2850] | 1.3049*** [0.5056] | -1.8510*** [0.7091] | 0.5327*** [0.1617] | -1.0726** [0.5401] | -2.8195*** [0.5714] |
| <i>athrho</i> | -0.263 [0.7268] | -0.1639 [0.4138] | -13.7859 [657.9473] | -0.2288 [0.7429] | -1.0664*** [0.3493] | -0.9250* [0.5073] | 0.2568 [0.6666] |
| IV: DistressHFRet | 2.4987 [1.6270] | 2.4865 [1.6255] | 2.1804* [1.1693] | 2.4452 [1.6426] | 2.9530** [1.3064] | 2.5117* [1.5206] | 2.4279 [1.6592] |
| IV: SP500Ret | 1.5612 [1.0245] | 1.6652 [1.0503] | 0.851 [0.6238] | 1.5936 [1.0273] | 0.4926 [0.8713] | 1.9517** [0.9271] | 1.6126 [1.0275] |

Table 6: Hedge funds on equity committee

Definitions of all variables are provided in Table 1. The numbers in brackets are standard errors. Superscripts ***, **, * correspond to statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Probit and OLS regressions

| | (1) Probit Emerge | (2) OLS Duration | (3) Probit DistEquity | (4) OLS DebtRecovery | (5) OLS StkRet | (6) Probit CEOTurnover | (7) Probit KERP |
|--|-------------------------|------------------------|-----------------------------|----------------------------|-----------------------|------------------------------|------------------------|
| HFEquityCommittee | 0.3898 [0.2984] | 0.16 [0.1494] | 1.2459*** [0.2814] | 0.1823*** [0.0680] | 0.1570*** [0.0433] | 0.6845** [0.2685] | -0.178 [0.2871] |
| Ln(Assets) | 0.035 [0.0642] | 0.0462 [0.0330] | -0.0752 [0.0733] | -0.0308** [0.0152] | -0.0114 [0.0102] | 0.1620*** [0.0618] | 0.3120*** [0.0645] |
| Leverage | 0.8411*** [0.2290] | -0.0903 [0.1001] | -0.0253 [0.2081] | -0.0526 [0.0472] | 0.0114 [0.0338] | 0.0898 [0.2119] | 0.276 [0.1877] |
| Cash | -0.8975 [0.7739] | -0.9306** [0.3985] | -0.3759 [0.9060] | 0.1454 [0.1930] | 0.0408 [0.1269] | -1.5671* [0.8249] | 0.2149 [0.7684] |
| Tangibility | 0.2009 [0.2927] | -0.116 [0.1477] | 0.8826*** [0.3119] | 0.2194*** [0.0671] | 0.0195 [0.0465] | -0.1084 [0.2919] | -0.2603 [0.2796] |
| ROA | 0.9110* [0.4912] | 0.001 [0.2428] | -0.3067 [0.5499] | 0.3010** [0.1226] | 0.0426 [0.0872] | 0.1091 [0.5151] | 1.0098** [0.4825] |
| SecuredDebt | 0.038 [0.2760] | -0.3262** [0.1308] | -0.3468 [0.2848] | -0.0373 [0.0609] | -0.0106 [0.0441] | -0.6591** [0.2896] | 0.2881 [0.2511] |
| Institution | 0.1237 [0.2909] | 0.1516 [0.1485] | 0.1115 [0.3320] | 0.009 [0.0679] | 0.033 [0.0502] | 0.2126 [0.2787] | 0.7136** [0.2775] |
| NumClasses | 0.1263*** [0.0278] | 0.0148 [0.0123] | 0.0441* [0.0255] | 0.0120** [0.0055] | 0.0015 [0.0038] | 0.0051 [0.0240] | 0.0201 [0.0232] |
| Prepack | 1.1537*** [0.1707] | -1.2424*** [0.0779] | 1.2048*** [0.1570] | 0.1931*** [0.0347] | 0.0273 [0.0260] | -0.3834** [0.1593] | -0.9775*** [0.1550] |
| Delaware | -0.2045 [0.1357] | -0.1170* [0.0700] | 0.1401 [0.1506] | 0.008 [0.0321] | 0.0209 [0.0229] | 0.0007 [0.1372] | 0.1879 [0.1318] |
| Constant | -2.1523*** [0.5084] | 2.6164*** [0.2504] | -1.5264*** [0.5569] | 0.5090*** [0.1164] | -0.0484 [0.0794] | -1.5906*** [0.4826] | -2.8698*** [0.4892] |
| # cases | 459 | 459 | 459 | 388 | 334 | 442 | 459 |
| Pseudo R ² / R ² | 0.2103 | 0.435 | 0.1989 | 0.1549 | 0.0541 | 0.0788 | 0.1627 |

Panel B: Bivariate probit and treatment regressions

| | (1) Bivariate Probit Emerge | (2) Treatment Duration | (3) Bivariate Probit DistEquity | (4) Treatment DebtRecovery | (5) Treatment StkRet | (6) Bivariate Probit CEOTurnover | (7) Bivariate Probit KERP |
|-------------------|-----------------------------------|------------------------------|---------------------------------------|----------------------------------|----------------------------|--|---------------------------------|
| HFEquityCommittee | 1.2052* [0.6610] | -0.5481* [0.3238] | -0.3338 [0.4696] | 0.1863 [0.2239] | 0.1351** [0.0652] | 2.3323*** [0.1660] | 0.2793 [0.9612] |
| Ln(Assets) | 0.0195 [0.0649] | 0.0556* [0.0336] | -0.0312 [0.0706] | -0.0309** [0.0154] | -0.011 [0.0100] | 0.1266** [0.0585] | 0.3036*** [0.0679] |
| Leverage | 0.8785*** [0.2287] | -0.1231 [0.1021] | -0.1151 [0.2067] | -0.0523 [0.0482] | 0.0095 [0.0335] | 0.1402 [0.2069] | 0.296 [0.1905] |
| Cash | -0.7617 [0.7783] | -1.0321** [0.4051] | -0.5378 [0.8749] | 0.1458 [0.1912] | 0.0372 [0.1249] | -1.3092* [0.7845] | 0.2812 [0.7761] |
| Tangibility | 0.2465 [0.2912] | -0.1606 [0.1505] | 0.7303** [0.3109] | 0.2197*** [0.0676] | 0.0177 [0.0458] | -0.0432 [0.2810] | -0.2294 [0.2865] |
| ROA | 0.8980* [0.4912] | 0.0126 [0.2456] | -0.2069 [0.5412] | 0.3009** [0.1208] | 0.0429 [0.0857] | 0.1894 [0.5065] | 1.0024** [0.4831] |
| SecuredDebt | 0.0002 [0.2759] | -0.3024** [0.1326] | -0.2679 [0.2778] | -0.0375 [0.0609] | -0.0092 [0.0434] | -0.6897** [0.2727] | 0.2687 [0.2540] |
| Institution | -0.0374 [0.3165] | 0.2847* [0.1596] | 0.4593 [0.3338] | 0.008 [0.0823] | 0.0376 [0.0504] | -0.1158 [0.2662] | 0.6275* [0.3308] |
| NumClasses | 0.1230*** [0.0280] | 0.0158 [0.0125] | 0.0427* [0.0245] | 0.0120** [0.0054] | 0.0016 [0.0037] | 0.001 [0.0230] | 0.0192 [0.0233] |
| Prepack | 1.1058*** [0.1790] | -1.2272*** [0.0790] | 1.1601*** [0.1578] | 0.1929*** [0.0348] | 0.0282 [0.0256] | -0.3752** [0.1523] | -0.9800*** [0.1546] |
| Delaware | -0.1794 [0.1368] | -0.1321* [0.0710] | 0.0930 [0.1456] | 0.0081 [0.0322] | 0.0204 [0.0225] | 0.0465 [0.1317] | 0.1961 [0.1321] |
| Constant | -2.0750*** [0.5132] | 2.5979*** [0.2534] | -1.6120*** [0.5278] | 0.5092*** [0.1151] | -0.049 [0.0780] | -1.3742*** [0.4595] | -2.8377*** [0.5000] |
| <i>athrho</i> | -0.4954 [0.4467] | 0.5935** [0.2832] | 1.1310** [0.5424] | -0.0081 [0.4219] | 0.0639 [0.1445] | -16.0011 [676.6833] | -0.2541 [0.5304] |
| IV: DistressHFRet | 10.1344*** [3.6911] | 9.4136*** [3.4772] | 10.5418*** [3.1651] | 8.9616** [4.1159] | 9.3827** [3.9653] | 9.6712*** [3.2102] | 10.0348*** [3.6743] |
| IV: SP500Ret | 4.0658** [1.7424] | 4.2156** [1.6611] | 3.3481** [1.5751] | 5.0997** [2.1028] | 4.3659** [1.9418] | 3.6236*** [1.3890] | 4.0578** [1.7391] |

Table 7: Hedge funds loan-to-own

Definitions of all variables are provided in Table 1. The numbers in brackets are standard errors. Superscripts ***, **, * correspond to statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Probit and OLS regressions

| | (1) OLS Duration | (2) Probit LossExclusivity | (3) Probit APRCreditor | (4) Probit DistEquity | (5) OLS DebtRecovery | (6) Probit CEOTurnover | (7) Probit KERP |
|--|------------------------|----------------------------------|------------------------------|-----------------------------|----------------------------|------------------------------|------------------------|
| HFLT0 | 0.0504 [0.0851] | -0.0843 [0.1820] | 0.6681*** [0.1821] | 0.3285** [0.1661] | 0.0588 [0.0369] | -0.1409 [0.1646] | 0.2982* [0.1594] |
| Ln(Assets) | 0.0476 [0.0348] | -0.3911*** [0.0892] | 0.0691 [0.0776] | -0.0917 [0.0739] | -0.0350** [0.0157] | 0.1534** [0.0630] | 0.2707*** [0.0668] |
| Leverage | -0.118 [0.1111] | -0.029 [0.2166] | -0.3896 [0.2705] | -0.2145 [0.2263] | -0.0422 [0.0504] | 0.1442 [0.2222] | 0.3235 [0.2063] |
| Cash | -0.9336** [0.4141] | -0.1114 [0.8454] | 0.0821 [1.0134] | -1.0462 [0.9401] | 0.1347 [0.1990] | -2.1144** [0.8613] | 0.0636 [0.7915] |
| Tangibility | -0.1989 [0.1582] | 0.4341 [0.3251] | -1.5063*** [0.4022] | 0.7402** [0.3183] | 0.2037*** [0.0702] | -0.2477 [0.3013] | -0.3084 [0.2964] |
| ROA | -0.0918 [0.2950] | -0.3111 [0.5496] | -0.132 [0.7719] | -0.8391 [0.6132] | 0.3257** [0.1402] | -0.1271 [0.5928] | 0.9024 [0.5532] |
| SecuredDebt | -0.3334** [0.1467] | -0.4761 [0.3097] | 1.7297*** [0.3292] | -0.3081 [0.3037] | 0.0172 [0.0641] | -0.5426* [0.3037] | 0.3898 [0.2768] |
| Institution | 0.1473 [0.1532] | 0.0651 [0.3243] | -0.2026 [0.3558] | 0.6942** [0.3169] | 0.0947 [0.0674] | 0.5421** [0.2764] | 0.7573*** [0.2851] |
| NumClasses | 0.0209 [0.0136] | -0.0008 [0.0281] | 0.0545* [0.0302] | 0.0294 [0.0263] | 0.0052 [0.0059] | 0.004 [0.0255] | 0.0229 [0.0255] |
| Prepack | -1.2328*** [0.0838] | -0.0641 [0.1723] | 0.1702 [0.1822] | 1.1715*** [0.1648] | 0.1896*** [0.0365] | -0.3309** [0.1639] | -1.1969*** [0.1691] |
| Delaware | -0.1129 [0.0742] | -0.4000*** [0.1547] | 0.2864* [0.1714] | 0.112 [0.1525] | -0.0267 [0.0333] | -0.0482 [0.1405] | 0.1029 [0.1385] |
| Constant | 2.5944*** [0.2727] | 1.9524*** [0.6350] | -2.1046*** [0.6241] | -1.1278** [0.5690] | 0.5727*** [0.1241] | -1.5101*** [0.5053] | -2.6263*** [0.5236] |
| # cases | 416 | 416 | 416 | 416 | 359 | 407 | 416 |
| Pseudo R ² / R ² | 0.4335 | 0.0928 | 0.1742 | 0.1656 | 0.1434 | 0.0668 | 0.1905 |

Panel B: Bivariate probit and treatment regressions

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|-------------------|------------------------|-------------------------------------|---------------------------------|--------------------------------|---------------------------|---------------------------------|--------------------------|
| | Treatment Duration | Bivariate Probit LossExclusivity | Bivariate Probit APRCreditor | Bivariate Probit DistEquity | Treatment DebtRecovery | Bivariate Probit CEOTurnover | Bivariate Probit KERP |
| HFLTO | 0.3278 [0.5692] | 1.6039*** [0.2851] | -0.1792 [0.7709] | 1.1057 [0.7374] | 0.7093*** [0.0704] | 1.0856*** [0.3890] | -0.1764 [0.7807] |
| Ln(Assets) | 0.0323 [0.0465] | -0.3809*** [0.0786] | 0.1163 [0.0840] | -0.1291* [0.0766] | -0.0739*** [0.0215] | 0.0652 [0.0682] | 0.2904*** [0.0698] |
| Leverage | -0.1483 [0.1268] | -0.1723 [0.1916] | -0.2556 [0.2993] | -0.2862 [0.2245] | -0.1027 [0.0683] | 0.0122 [0.2092] | 0.3673* [0.2127] |
| Cash | -0.8717** [0.4321] | 0.0118 [0.7764] | -0.1694 [1.0124] | -0.8653 [0.9287] | 0.2804 [0.2696] | -1.6698** [0.8296] | -0.0537 [0.8095] |
| Tangibility | -0.2399 [0.1786] | 0.1102 [0.2983] | -1.2481** [0.5120] | 0.5808 [0.3550] | 0.1071 [0.0954] | -0.3633 [0.2831] | -0.2339 [0.3220] |
| ROA | -0.0998 [0.2950] | -0.3742 [0.4982] | -0.1141 [0.7318] | -0.8199 [0.6005] | 0.3280* [0.1898] | -0.033 [0.5603] | 0.8993 [0.5496] |
| SecuredDebt | -0.2847 [0.1767] | -0.1402 [0.2828] | 1.4420*** [0.4950] | -0.1468 [0.3369] | 0.1267 [0.0871] | -0.3003 [0.2974] | 0.2986 [0.3176] |
| Institution | 0.1528 [0.1533] | 0.1161 [0.2791] | -0.2087 [0.3400] | 0.6649** [0.3140] | 0.1092 [0.0913] | 0.4821* [0.2641] | 0.7293** [0.2913] |
| NumClasses | 0.0135 [0.0203] | -0.0424* [0.0253] | 0.0741** [0.0319] | 0.0072 [0.0338] | -0.0119 [0.0081] | -0.0311 [0.0264] | 0.035 [0.0312] |
| Prepack | -1.2656*** [0.1069] | -0.2008 [0.1489] | 0.2615 [0.1898] | 1.0150*** [0.2593] | 0.1328*** [0.0496] | -0.4158*** [0.1523] | -1.1130*** [0.2480] |
| Delaware | -0.1157 [0.0743] | -0.3280** [0.1390] | 0.2797* [0.1656] | 0.1025 [0.1482] | -0.0447 [0.0451] | -0.0441 [0.1319] | 0.106 [0.1373] |
| Constant | 2.7266*** [0.3822] | 2.1906*** [0.5411] | -2.4400*** [0.6294] | -0.7063 [0.6953] | 0.8780*** [0.1696] | -0.7145 [0.5742] | -2.7915*** [0.5480] |
| <i>athrho</i> | -0.2306 [0.4717] | -1.5491** [0.6394] | 0.5379 [0.5559] | -0.5153 [0.5711] | -1.6537*** [0.2549] | -0.9003** [0.4175] | 0.2893 [0.4875] |
| IV: DistressHFRet | 4.4662** [1.9191] | 3.8714** [1.7186] | 5.0130*** [1.7574] | 4.6966*** [1.7355] | 4.8026*** [1.3116] | 5.0722*** [1.6538] | 4.5681** [1.7855] |
| IV: SP500Ret | 0.5897 [1.0994] | -0.1208 [0.9345] | 0.1362 [1.0672] | 0.4762 [1.0363] | 0.2502 [0.6996] | 0.635 [0.9723] | 0.5751 [1.0689] |

Table 8: Market reactions around Chapter 11 filing

This table presents the regression result where the dependent variable is CAR, cumulative abnormal announcement period return, measured over different event windows. Day 0 is the date of a Chapter 11 filing. Definitions of all variables are provided in Table 1. The numbers in brackets are standard errors. Superscripts ***, **, * correspond to statistical significance at the 1%, 5%, and 10% levels, respectively.

| | (1) CAR[-10, +10] | (2) CAR[-5, +5] | (3) CAR[-1, +5] | (4) CAR[-1, +10] |
|--------------------|----------------------|---------------------|-----------------------|----------------------|
| HFLargestCreditors | 0.2076** [0.1014] | 0.1455* [0.0871] | 0.1686** [0.0756] | 0.1963** [0.0837] |
| Ln(Assets) | -0.0628 [0.0384] | -0.0359 [0.0330] | 0.0128 [0.0286] | -0.0123 [0.0318] |
| Leverage | -0.0011 [0.1392] | -0.0975 [0.1200] | -0.0719 [0.1041] | -0.0585 [0.1154] |
| Cash | 0.5866 [0.4789] | 0.4118 [0.4171] | 0.1567 [0.3604] | 0.2195 [0.3932] |
| Tangibility | -0.0207 [0.1835] | -0.2012 [0.1574] | -0.2880** [0.1367] | -0.2323 [0.1510] |
| ROA | 0.639 [0.4239] | 0.381 [0.3660] | 0.5031 [0.3255] | 0.6570* [0.3548] |
| SecuredDebt | -0.0879 [0.1762] | 0.004 [0.1511] | 0.0751 [0.1337] | 0.0429 [0.1485] |
| Institution | -0.1414 [0.1890] | 0.0073 [0.1622] | 0.0231 [0.1408] | -0.0322 [0.1564] |
| NumClasses | 0.0085 [0.0148] | 0.012 [0.0127] | 0.0026 [0.0110] | 0.0062 [0.0122] |
| Prepack | 0.1029 [0.1056] | 0.1119 [0.0912] | -0.0478 [0.0797] | 0.0125 [0.0880] |
| Delaware | 0.0424 [0.0901] | -0.0556 [0.0778] | -0.088 [0.0678] | -0.0334 [0.0750] |
| Constant | 0.0452 [0.3140] | 0.0861 [0.2707] | -0.0635 [0.2355] | 0.0008 [0.2612] |
| # cases | 276 | 273 | 265 | 267 |
| R ² | 0.0528 | 0.0436 | 0.0595 | 0.0492 |