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Hedge Funds and Chapter 11

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ABSTRACT

This paper studies the presence of hedge funds in the Chapter 11 process and their effects on bankruptcy outcomes. 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 secured creditors. Their effect on the debtor manifests in higher probabilities of the latter's loss of exclusive rights to file reorganization plans, CEO turnover, and adoptions of key employee retention plan, while their effect on secured creditors manifests in 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 bankruptcy process takes a variety of forms, including investing in debt claims, buying equity stakes, serving on the unsecured creditors or equity committee, and pursuing a "loan-to-own" strategy, whereby a hedge fund acquires the debt of a distressed borrower with the intention of converting the acquired position into a controlling equity stake upon the firm's emergence from Chapter 11.

Using a comprehensive sample of 474 Chapter 11 cases from 1996 to 2007 formed by merging a variety of data sources, we show that hedge fund presence

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has been prevalent in the Chapter 11 process—close to 90% of the sample cases have publicly observable involvement by hedge funds. This result 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, one-third of the trading volume in leveraged loans, and one-quarter of the trading volume in high-yield bonds during 2005 to 2006.[1] Yet despite anecdotal evidence on hedge fund vultures in the media and case studies by law scholars on various strategies favored by hedge funds, to date no study has systematically examined hedge fund involvement in Chapter 11 over 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 on hedge funds as an emerging force in the Chapter 11 process. First and foremost, we find that, as large unsecured creditors, hedge funds balance the power between the debtor and secured creditors. This effect manifests in higher probabilities of the debtor's loss of exclusive rights to file a reorganization plan, CEO turnover, and adoptions of key employee retention plans (KERP), and in higher probabilities of emergence and payoffs to junior claims. While the bankruptcy process was traditionally classified as either "management driven" (Franks and Torous (1994), Berkovitch, Isreal, and Zender (1998)) or "senior creditor driven" (Welch (1997), Baird and Rasmussen (2003)), hedge funds have driven the transformation of the restructuring process into one that is best characterized as "management neutral" (Skeel (2003), Harner (2008a)), where managers facilitate and implement the distressed firm's restructuring plans but do not control the restructuring process.

Second, we find that, hedge funds' choice of distressed targets and positions in the capital structure reflect both their firm-picking skills and their desire to have a larger 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 first fails to fully cover outstanding claims. Moreover, hedge funds prefer companies in which secured debt is more likely to be overcollateralized, leaving room for unsecured creditors to 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.

We further find that hedge funds are effective in achieving their 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 unsecured creditors or equity committee is associated with more favorable distributions to that class of claims, and hedge funds' pursuance of

[1] 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=.

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 than of 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 a more positive stock market response at the time of a bankruptcy filing, suggesting a positive effect of hedge fund creditors on the firm's total value. Such value creation may come from overcoming secured creditors' liquidation bias (i.e., a higher probability of emergence), confronting underperforming CEOs (i.e., a 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). Similarly, 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 our understanding of the major forces underlying the patterns of and changes in the Chapter 11 process in the United States over the past decade, and contributes to the growing research on hedge fund activism in corporate decisions. By analyzing the same hedge fund holding different types of stakes (e.g., debt, equity, or both) in a distressed firm over the course of Chapter 11 restructuring, our work may stimulate new theoretical research on bankruptcy that allows for complex and dynamic interactions among various stakeholders. 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 investing[2]) 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 provides a brief review of the institutional background and outlines the main hypotheses that motivate our empirical tests. Section II describes the data collection process and presents an overview of hedge funds' participation in Chapter 11. Section III examines the determinants of hedge funds' participation on the debt and equity sides. Section IV analyzes the effects of hedge funds' involvement in Chapter 11 on the final outcomes. Finally, Section V concludes.

I. Institutional Background and Empirical Motivations

The bankruptcy of utility company Northwestern Corporation illustrates hedge fund involvement in the restructuring process. The company filed a voluntary petition under Chapter 11 on September 14, 2003. Hedge funds

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

(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. The hedge funds emerged as major shareholders in the restructured company.

The above example 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 seek out distressed claims for profitable investment. Secondly, hedge funds typically initiate their investment on the debt side, 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 process, notably, the strengthening of creditors' rights (Bharath, Panchapegesan, and Werner (2007), 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 have all contributed to the increased presence of hedge funds among claimants of distressed companies over the last decade. The presence of hedge funds in turn promotes the development of an active secondary market for distressed claims, which changes the nature of in-bankruptcy governance and voting dynamics (Stromberg (2000); Thorburn (2000); Baird and Rasmussen (2003); Eckbo and Thorburn (2009)).

Hedge funds are uniquely suited to pursuing activist strategies—that is, investing with the intention to intervene in distressed firms—for two reasons. First, compared to other institutional investors (such as banks, mutual funds, and pension funds), hedge funds have more incentives 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, hedge funds are better able to hold highly concentrated, illiquid positions that strengthen their influence at the negotiation table. In contrast, mutual funds and pension funds are required by law to maintain diversified and prudent portfolios. Pension funds usually shun bankrupt firms because of the prudent man rule and the Employee Retirement Income Security Act of 1974 (ERISA), which discourage risk taking at the individual security level. Mutual funds have limited capacity to invest in illiquid and especially nontraded securities due to their need to maintain an open-ended structure. Banks and mutual funds are also subject to regulatory restrictions that constrain their capacity for taking on legal liabilities[3] and getting involved in the management

[3] Holding a large position in a portfolio firm and/or being involved in the management of the firm brings legal uncertainties and obligations to an investor and often imposes restrictions on

of their portfolio firms. In comparison, 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 investing in distressed firms and in influencing the restructuring process.

Being relatively new players in Chapter 11, hedge funds' strategies and impacts have not been systematically studied before. The key goal of our research is to inform the debate on whether hedge fund participation improves the efficiency of the bankruptcy process. Aghion, Hart, and Moore (1992, p. 532) succinctly summarize the two goals of an efficient bankruptcy procedure: "*(1) it maximizes the ex post value of the firm (with an appropriate distribution of this value across claimants); (2) it preserves the (ex ante) bonding role of debt by penalizing management adequately in bankruptcy states*." Following their benchmark, our analyses focus on the following aspects of hedge fund incentives and their potential impact on the Chapter 11 process.

First, we examine whether hedge fund participation as creditors or shareholders impacts the outcomes of bankruptcies that favor the payoff to the claims they hold. As sophisticated investors striving for high investment returns, hedge funds are expected to select firms and positions in the capital structure that offer the best prospects. Outcome variables considered include the likelihood of firm emergence from Chapter 11 (which is usually considered an outcome favorable to junior claims—unsecured creditors and shareholders—as opposed to being liquidated or acquired), debt recovery rate, and stock returns. Furthermore, we try to identify the causal effects of hedge funds' participation in bankruptcy. A comparison of the treatment effects and the total effects allows us to comment on hedge funds' ability to select firms based on unobserved characteristics.

Secondly, we test whether hedge funds help push the Chapter 11 process more in the direction of a senior creditor-driven process (with a pro-liquidation bias) or a management-driven process (with inadequate penalties for management), or if they manage to balance the power between the two parties and create a process somewhere in between these two extremes. Outcome variables considered for analyzing hedge funds' impact on senior secured creditors' power include the likelihood of emergence, given the latter's bias for liquidation, and APR deviation from secured to unsecured creditors; those considered for analyzing hedge funds' impact on managerial power include the probability of the debtor's loss of exclusive rights to file a reorganization plan, CEO turnover, and adoptions of KERP.

Finally and most importantly, we address the question of whether hedge funds bring efficiency gains to the Chapter 11 process by enhancing the total value of all claims, or merely engage in value extraction from other parties. While hedge funds' concentrated holdings reduce the free-riding problem in bankruptcy (Kahan and Rock (2009), von Thadden, Berglöf, and Roland (2010)), they might also give rise to wasteful bargaining activities (Bris and

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.

Welch (2005)) or a hold-out problem whereby hedge funds block the approval of a bankruptcy plan by accumulating large positions in a class of claims, which could prolong the process or add to the cost of restructuring (Rosenberg (2000)). With anecdotal evidence supporting either view, the issue has been heatedly debated—mostly among legal scholars (Goldschmid (2005), Baird and Rasmussen (2008))—without the support of large-sample empirical evidence. To this end, we examine the impact of hedge funds as creditors on both debt recovery and stock returns, and also follow up on post-Chapter 11 firm financial and operating performance.

II. Sample and Data

A. Sample Formation

This study builds on one of the most comprehensive data sets used in the literature on U.S. bankruptcies. Our sample spans all major Chapter 11 filings over the period 1996 to 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. A comparison of our sample and those used in previous studies published in the recent decade[4] is provided in the Internet Appendix.[5]

A.1. The Sample of U.S. Chapter 11 Firms

The Lynn M. LoPucki 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 to 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. We obtain 500 such cases for the sample period, which we cross check with New Generation Research's BankruptcyData.com to verify their Chapter 11 status and to obtain information on the final outcomes. Following this process, three cases drop out of our sample because one was in fact a Chapter 7 filing and two were duplicates of or affiliated with other cases. We drop another 23 cases from 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).

[4] The list of studies includes Eisenberg and LoPucki (1999), Lopucki and Doherty (2002), Dahiya et al. (2003), Ayotte and Skeel (2004), LoPucki and Doherty (2004), Adler, Capkun, and Weiss (2006), Bris, Welch, and Zhu (2006), Adler, Capkun, and Weiss (2007), Kalay, Singhal, and Tashjian (2007), Bharath et al. (2007), Capkun and Weiss (2008), Ayotte and Morrison (2009), and Lemmon, Ma, and Tashjina (2009).

[5] An Internet Appendix for this article is available online in the "Supplements and Datasets" section at http://www.afajof.org/supplements.asp.

The Bankruptcy Research Database provides basic information about the cases, including the date of filing,[6] 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.

A.2. 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, debtor-in-possession (DIP) financing, approval of KERP, and top management turnover. We obtain such information mainly from BankruptcyData.com, and supplement it with New Generation Research's Bankruptcy DataSource database, Public Access to Court Electronic Records (PACER), and news searches in Factiva and LexisNexis. BankruptcyData.com keeps bankruptcy reorganization and liquidation plans, and provides the following information for most of the cases: classes of claims, dollar amount of allowed claims, recovery, and whether a cash or security distribution is made to each class of claimant. For four cases in which the reorganization plans are not available, we purchased their plans directly from the U.S. bankruptcy courts. Combining all the above sources with firms' 8K filings, we are able to code the key aspects of our 474 cases' 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, DealScan, the SDC Syndicated Loan Database, and news searches in LexisNexis and Factiva.

A.3. Identifying Hedge Funds among Key Stakeholders

To track the various roles that hedge funds play at different stages of a 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 II.A2, and then identify hedge funds from this list. It is worth noting that there is no official definition for "hedge funds." For the

[6] We use the filing dates of the parent companies if there are also filings by subsidiaries. In practice, they usually get consolidated in the same court. We manually check the "related filings" in LoPucki's database and find that fewer than 5% of the cases have affiliate filings elsewhere on the same day or before.

purpose of our research, we classify them as incentivized professional money managers whose pooled investment vehicles are not directly accessible to the general public. Due to these broad criteria, our list of "hedge funds" includes managers of alternative investment vehicles that are sometimes not considered "hedge funds" in the narrow 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 side 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 Securities Exchange Act that requires investors to disclose within 10 days of acquisition of, or conversion into, 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.

A.4. Firm-Level Financial Information and Security Prices

We merge our sample of Chapter 11 filers with the 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 that characterize distribution to junior claims (unsecured debt and equity), possibly as a result of APR deviations (Eberhart, Moore, and Roenfeldt (1990), Betker (1995), Eberhart and Weiss (1998)), using information from bankruptcy plans and supplemented by BankruptcyData.com and Datastream. The first variable, *APRCreditor*, measures the APR deviations for secured creditors (Capkun and Weiss (2008)).[7] 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 existing equity holders.

Table I defines all the major variables used in this paper and provides their data sources.

B. Sample Overview

Table II, 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 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, a trend also noted by Bharath et al. (2007). Third, APR deviations (as captured by *APRCreditor*) are not commonplace in our sample, occurring in about 15% of the cases, which is much smaller than in the 1980s and early 1990s, when APR deviations were the norm rather than the exception (see, e.g., Weiss (1990), Adler et al. (2007)).[8] 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 to 2006.[9] In comparison, the average duration in Franks and Torous's (1994) sample over the period 1983 to 1988 is close to 30 months and the average in the Bharath et al. (2007) sample over the period 1979 to 2005 is 18 months.

Panel B of Table II presents summary statistics of firm and Chapter 11 case characteristics. All firm-level variables are recorded at the fiscal year-end prior to the bankruptcy filing date. To mitigate the influence of outliers, we winsorize all potentially unbounded variables at the 1st and 99th percentiles. The median size of our sample firms, measured by total assets (*Assets),* is \$706 million in 2008 constant dollars, putting the typical sample firm between the 6th and 7th size decile of the Compustat universe during the same period. Both the mean and median ratios of liabilities to total assets (*Leverage*) are close to one, much

[7] We use market values of equity and warrants at emergence to calculate debt recovery.

[8] Our sample statistics are consistent with Bharath et al. (2007) and Capkun and Weiss (2008) using more recent data.

[9] The duration statistics for 2007 are not included to mitigate the truncation bias toward the end of our sample.

Table I
Variable Definitions

This table provides the definition of variables used in the study and data sources.

Variable	Definition	Data Source
Firm Characteristics		
Assets	Book assets measured in 2008 dollars.	Bankruptcy Research Database, BankruptcyData.com, Compustat
AssetsChange	The change in book assets between the last fiscal year-end and the time of filing Chapter 11, scaled by the former.	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, BankrutpcyData.com, Compustat
Institution	Percentage of institutional ownership.	Thomson Reuters Ownership Database (13Fs)
NumClasses	Number of claim classes.	Bankruptcy Plans
CBLenders	An indicator variable that takes a value of one if at least one commercial bank is among the secured lenders.	BankruptcyData.com, DealScan, and SDC Syndicated Loan Database
Bankruptcy Case Characteristics		
Prepack	An indicator variable that 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

(continued)

Table I—*Continued*

Variable	Definition	Data Source
Delaware	An indicator variable that 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 that takes a value of one if the debtor loses its exclusive right to file a plan of reorganization after 180 days in bankruptcy.	Bankrutpcydata.com and Factiva
DIP	An indicator variable that 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 that takes a value of one if a KERP is approved by the court.	BankruptcyData.com, Bankruptcy DataSource, Bankruptcy Plans, LexisNexis, Factiva
Creditors Committee	An indicator variable that takes a value of one if an unsecured creditors committee is appointed by the court.	BankruptcyData.com, LexisNexis, Factiva
Equity Committee	An indicator variable that takes a value of one if an equity committee is appointed by the court.	BankruptcyData.com, LexisNexis, Factiva
CEOTurnover	An indicator variable that 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)
Emerge	An indicator variable that takes a value of one if the bankrupt firm emerges from bankruptcy.	Bankruptcy Research Database, BankruptcyData.com
Liquidated	An indicator variable that 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 that 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 that 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

(continued)

Table I—*Continued*

Variable	Definition	Data Source
StkRet	Standardized abnormal monthly return, constructed by subtracting the contemporaneous holding period return of the CRSP equal-weighted index from the 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 CARs from *a* days before bankruptcy filing to *b* days after filing.	CRSP, Bloomberg, Datastream
Hedge Fund Presence		
HFCreditors Committee	An indicator variable that takes a value of one if at least one hedge fund is on the unsecured creditors committee.	BankruptcyData.com, LexisNexis, Factiva
HFLargest Creditors	An indicator variable that 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
HFEquity Committee	An indicator variable that takes a value of one if at least one hedge fund is on the equity committee.	BankruptcyData.com, LexisNexis, Factiva
HFJoint 5%	An indicator variable that 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 that 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 are identified from a list of the largest unsecured creditors and 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 that 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 that 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 II

Summary of Chapter 11 Cases

The sample includes 474 large U.S. Chapter 11 filings from 1996 to 2007. This table presents summary statistics of key bankruptcy case and firm characteristics. Variable definitions are provided in Table I. Panel A presents summary statistics of key case characteristics by year. Numbers presented are in percentages except for *Duration*. The variable *N* in Column (1) is the number of Chapter 11 filings in a given year (*N*). Panel B presents summary statistics of key firm characteristics.

Panel A: Bankruptcy Case Characteristics by Year

Filing Year	(1) N	(2) Loss Exclusivity	(3) DIP	(4) KERP	(5) Creditors Committee	(6) Equity Committee	(7) CEO Turnover	(8) Emerge	(9) Liquidated	(10) Duration (months)	(11) APR Creditor	(12) Dist Equity	(13) 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	54.5	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	64.0	54.0	100.0	14.0	30.0	68.0	24.0	15.9	10.0	20.0	52.3
2004	28	35.7	82.1	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	64.3	40.3	85.2	11.2	26.7	60.3	29.3	16.8	14.8	20.9	51.5

(continued)

Table II—*Continued*

Panel B: Summary Statistics of Key Firm and Case Characteristics

Firm/Case Characteristics	*N*	Mean	Standard Deviation	Min	25th	Median	75th	Max
Assets	474	2,718	8,975	220	424	706	1,686	124,363
Sales	474	1,901	6,914	0	323	615	1,324	122,787
Leverage	474	0.997	0.390	0.254	0.767	0.919	1.129	2.707
Cash	473	0.068	0.097	0.000	0.011	0.030	0.082	0.513
Tangibility	474	0.358	0.240	0.000	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	0.280	0.287	0.000	0.034	0.226	0.430	1.499
Institution	474	0.278	0.254	0.000	0.018	0.239	0.435	1.000
NumClasses	414	8.995	3.112	3	7	9	10	27
Prepack	474	0.293	0.456	0	0	0	1	1
Delaware	474	0.430	0.496	0	0	0	1	1

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. The Internet Appendix reports the pairwise correlation coefficients among key firm/case characteristics and hedge fund participation variables.

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

A. Overview of Hedge Fund Involvement

Table III 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. While our formal analyses focus on hedge fund impact using the default measure in each category, sensitivity analyses using alternative measures are reported in the Internet Appendix.

Our default measure for hedge fund involvement as creditors is *HFCreditorsCommittee,* which refers to cases in which a hedge fund sits on the unsecured creditors committee.[10] The alternative measure, *HFLargestCreditor,* refers to cases in which 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.

Our default measure for hedge fund participation on the equity side is *HFEquityCommittee*, which refers to cases in which a hedge fund serves on the equity committee. The alternative measure is *HFJoint5%*, an indicator variable for hedge funds that jointly hold more than 5% of the outstanding shares based on their Schedule 13D and Form 13F filings, or information from BankrutpcyData.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, whereby a hedge fund enters the restructuring process as a major creditor with the intention to emerge from the process as a significant shareholder. Our default measure for hedge funds playing the LTO strategy, *HFLTO,* takes a value of one if any of the following situations applies:[11] (i) a hedge fund identified from

[10] 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 controlling creditors' involvement in the debtor's restructuring and further their investment agenda (Harner (2008a)). The committee usually hires professionals (counsels and financial advisors) to serve as its representatives. Though it does not directly vote on a reorganization plan, the committee makes recommendations 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.

[11] 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.

Table III

Hedge Fund Presence in Chapter 11 by Year and Timing

The sample includes 474 large U.S. Chapter 11 filings from 1996 to 2007. This table presents an overview of hedge fund presence during the Chapter 11 process. Statistics are grouped by year and by the timing of hedge fund presence. *N* is the number of Chapter 11 filings in a given year. All numbers in Columns (1) to (12) are in percentages and track the presence of at least one hedge fund in the following roles: (1) among the 20 or 50 largest unsecured creditors as listed on the Chapter 11 petition forms (*Largest creditors*); (2) among the top shareholders at the time of filing (*Largest shareholders*); (3) filing Schedule 13D within one year before Chapter 11 filing (*13D filing*); (4) on the unsecured creditors committee (*Unsecured creditors committee*); (5) among the providers of debtor-in-possession financing (*DIP financing*); (6) filing Schedule 13D during the reorganization process (*13D filing*); (7) on the equity committee (*Equity committee*); (8) adopting a loan-to-own strategy (*Loan-to-own*); (9) adopting a loan-to-own strategy or providing debtor-in-possession financing (*Loan-to-own˙DIP*); (10) being on the debt side including *largest creditors*, *unsecured creditors committee*, and *DIP financing* (*Debt side*); (11) being on the equity side including *largest shareholders*, *13D filing* both before and during bankruptcy, and *equity committee* (*Equity side*); and (12) the overall involvement by hedge funds (*Overall*).

		HF Presence Before Bankruptcy			HF Presence During Bankruptcy				Both Before and During Bankruptcy				
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Filing Year	*N*	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	Overall
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	29.4	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	29.0	58.5	56.0	89.2
2001	88	11.3	44.7	5.7	29.4	3.4	2.3	3.5	18.5	23.1	51.2	48.2	88.3
2002	80	28.3	47.4	2.5	43.5	8.7	3.8	3.8	33.3	37.9	64.2	50.0	86.9
2003	50	20.9	50.0	8.0	47.6	14.0	2.0	10.2	34.0	44.7	66.7	59.2	89.1
2004	28	29.6	25.0	14.3	48.1	21.4	7.1	7.4	42.9	50.0	67.9	35.7	85.7
2005	23	21.7	59.1	13.0	40.9	21.7	17.4	13.0	30.4	47.8	59.1	73.9	91.3
2006	13	30.8	61.5	7.7	38.5	38.5	30.8	38.5	23.1	53.8	76.9	69.2	84.6
2007	10	0.0	80.0	20.0	20.0	20.0	0.0	10.0	0.0	20.0	30.0	80.0	90.0
All	474	25.1	48.5	7.0	39.5	9.1	4.4	5.8	27.7	34.5	60.7	53.4	87.4

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 that 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 conditions (i) or (ii) above, 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 that replace exit financing with debt-for-equity swaps.[12]

The most salient pattern emerging from Table III 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.

A few additional patterns are summarized as follows. First, despite the absence of an obvious time trend, hedge funds' participation on the debt side exhibits significant cyclicality: hedge fund presence on the unsecured creditors committee or just among the largest unsecured creditors is relatively low in 1997, 2001, and 2007, years with tightened credit conditions. On the other hand, hedge fund provision of DIP financing rises steadily over our sample period, coinciding with the overall increasing trend of DIP financing since 1990 (Dahiya et al. (2003), Bharath et al. (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 than 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, but the percentage 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.[13] Conditional

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

[13] Unlike the unsecured creditors committee, the equity committee is not common (see Bharath et al. (2007) and our statistics in Table II, Panel A). Parties (usually the seven largest equity holders as dictated by the U.S. Bankruptcy Codes, Section 1102) that have the 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.

on having an equity committee, hedge funds have representation in more than half of the cases, and in all cases during the 2005 to 2007 period. Therefore, it seems that hedge fund shareholders have strong incentives to represent other 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 34% of the cases if it is. These numbers are remarkably close to the survey evidence in Harner (2008b).[14] Hedge funds' loan-to-own strategies are clearly cyclical. In the years of tightened credit conditions, the percentage of cases in which 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, in the Appendix we list 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. Oaktree 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, but also holds large unsecured claims and often 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 III.A. The set of explanatory variables, described in Section II, is chosen following prior literature on bankruptcy.[15] Table IV reports the predictive regressions.

Our discussion of Table IV focuses 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

[14] 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 a controlling ownership position?" Thirty-two percent of the respondents indicate that they engage and succeed in this practice.

[15] 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.

Table IV

Predicting Hedge Fund Presence in Chapter 11

This table presents the probit regression results examining the determinants of hedge fund participation in Chapter 11. Columns (1) and (2) and Columns (3) and (4) examine the determinants of hedge fund participation on the debt side and the equity side, respectively. Columns (5) and (6) examine hedge funds adopting a loan-to-own strategy. Definitions of variables are provided in Table I. Numbers in brackets are standard errors. ***, **, * correspond to statistical significance at the 1%, 5%, and 10% levels, respectively.

	Hedge Funds on Debt Side		Hedge Funds on Equity Side		Hedge Funds Loan-to-Own	
	(1)	(2)	(3)	(4)	(5)	(6)
Variable	HFCreditorsCommittee	HFLargestCreditors	HFEquityCommittee	HFJoint5%	HFLTO	HFLTO_DIP
Ln(Assets)	0.163**	−0.083	0.104	−0.074	0.168***	0.105**
	[0.064]	[0.067]	[0.084]	[0.060]	[0.064]	[0.062]
Leverage	0.242	−0.257	−0.857**	−0.039	0.361*	0.429**
	[0.210]	[0.219]	[0.439]	[0.178]	[0.204]	[0.196]
Cash	1.538**	0.412	−1.851	1.518**	−0.909	−0.570
	[0.784]	[0.774]	[1.609]	[0.699]	[0.864]	[0.777]
Tangibility	0.286	0.087	−0.486	0.020	0.475	0.282
	[0.294]	[0.304]	[0.452]	[0.267]	[0.295]	[0.283]
ROA	0.828	0.063	0.539	0.759*	0.113	0.301
	[0.593]	[0.621]	[0.978]	[0.455]	[0.585]	[0.556]
SecuredDebt	−0.670**	−0.071	0.311	0.578**	−0.526**	−0.434*
	[0.288]	[0.290]	[0.428]	[0.235]	[0.272]	[0.260]
Institution	−0.197	0.115	1.474***	1.103***	−0.106	0.312
	[0.282]	[0.296]	[0.413]	[0.264]	[0.288]	[0.273]
NumClasses	0.012	0.036	0.013	−0.042*	0.082***	0.075***
	[0.024]	[0.025]	[0.036]	[0.023]	[0.025]	[0.025]
Prepack	−0.201	0.219	0.217	0.152	0.375**	0.281**
	[0.154]	[0.164]	[0.240]	[0.139]	[0.151]	[0.146]
Delaware	−0.169	0.129	−0.154	0.194	0.037	0.138
	[0.138]	[0.147]	[0.218]	[0.125]	[0.139]	[0.133]
Constant	−1.590***	−0.371	−2.020***	0.196	−2.957***	−2.424***
	[0.503]	[0.529]	[0.691]	[0.453]	[0.524]	[0.496]
N	369	361	459	447	416	416
Pseudo-R^2	0.050	0.016	0.148	0.058	0.087	0.077

5% level). A low ratio of secured debt to total assets implies that the senior debt is more likely to be overcollateralized, 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 we control for *Leverage*, 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 undercollateralized. 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 phenomenon documented by Brav et al. (2008) and Bradley et al. (2010) among hedge funds that pursue activist agendas in underperforming 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 associated with adoption of the strategy (significant at the 10% level or better), while secured debt ratios are negatively associated with hedge funds' loan-to-own strategies (significant at the 5% level). 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 classes[16] (*NumClasses*) in our sample is nine. A larger number of claim classes is usually associated with greater difficulty in reaching agreement among different groups of investors (Franks and Torous (1994), Betker (1995)). However, the involvement of hedge funds in different parts of the capital structure through the loan-to-own strategy should 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 unsecured creditors prefer prepackaged bankruptcies to traditional Chapter 11 reorganizations because the priority for

[16] The different classes of claims include, for example, tax claims, secured claims, priority nontax 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.

secured creditors is less likely to be upheld in the former case. Their results are consistent with our evidence that hedge funds start their loan-to-own strategies by first investing in unsecured debt, which tends to enjoy higher recovery rates under prepackaged bankruptcies. Our main analyses include an indicator variable for prepackaged Chapter 11 as a control variable in all regressions to be consistent with the general practice in the literature. Sensitivity analyses excluding prepackaged cases are reported in Section IV.B6.

Table IV, complemented by evidence from Tables II and III, reveals hedge funds' strategic choice in seeking an entry point in the capital structure of the distressed firm that allows them to have a strong impact on reorganization. In general, hedge funds are more likely to approach distressed firms from the debt side than from the equity side, though a higher percentage of them become equity holders ex post. Within the debt category, the most popular entry point for hedge funds is unsecured debt (Baird and Rasmussen (2008), Harner (2008a)). This preference is consistent with the argument put forth by recent legal studies[17] that hedge funds have a strong preference for so-called "fulcrum" securities in the capital structure, which is the point in the capital structure where the enterprise value first 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 securities' value to their actions.

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

IV. 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 nine variables: (i) *Emerge*, which measures the emergence of the firm from bankruptcy (as opposed to being liquidated or acquired); (ii) *Duration*, which measures the number of months (measured in log) spent in bankruptcy until resolution (which includes emergence, liquidation, or acquisition); (iii) *LossExclusivity*, which measures the debtor's loss of its exclusive right to file a plan of reorganization after 180 days in bankruptcy; (iv) *APRCreditor,* defined in Section II.A4, which measures the occurrence of distributions to unsecured creditors before secured creditors are paid in full; (v) *DistEquity*, which measures distributions made

[17] See, for example, "Riding the Fulcrum Seesaw; How Hedge Funds Will Change the Dynamics of Future Bankruptcies," by Mark S. Lichtenstein and Matthew W. Cheney in *New Jersey Law Journal*, January 1, 2008.

to existing shareholders; (vi) *DebtRecovery*, which measures the average recovery of all corporate debt (including secured and unsecured debt) at plan confirmation; (vii) *CEOTurnover*, which measures CEO turnover during the reorganization process; (viii) *KERP*, which measures the existence of a KERP approved by the court; and (ix) *StkRet*, which measures the standardized abnormal return from Chapter 11 filing to plan confirmation. The variables (ii), (vi), and (ix) are continuous, while the rest are binary variables. The variables (iv) and (v) characterize distributions to junior claims as a result of APR deviation, and the variables (vii) and (viii) capture the incentives and stability of senior management during the Chapter 11 process. Each table presented below includes a subset of these nine outcome variables as relevant for the particular role that hedge funds assume.

Any relation between hedge fund presence and bankruptcy outcomes could result from two effects: (i) a pure selection effect, whereby informed hedge funds pick the targets that offer the best expected payoff,[18] and the value of the underlying assets is exogenous to hedge funds' action, and (ii) a pure treatment effect, whereby 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.

A priori a combination of these two effects is likely at work. Hedge funds are sophisticated investors that could potentially profit from their company-picking skills even if they remain passive stakeholders, and at the same time hedge funds are likely to choose cases in which they can more effectively influence the outcome in their favor. It is worth noting that 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 could remain passive large stakeholders without the costly voluntary effort of forming and serving on those 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 to form an equity committee. The duties of committee members range from reviewing the debtor's books to monitoring the debtor's business and legal activities and recommending a course of action to the holders of the claims they represent. However, their presence on such committees may infringe on their flexibility in trading claims due to their access to nonpublic material information. According to Ayotte and Morrison (2009), the unsecured creditors committee often objects to key plan terms, such as the appointment of professionals, DIP loan terms, asset sales, and exclusivity extensions. It is, therefore, highly unlikely that hedge funds would put in such effort and incur the related costs if they did not intend to actively influence the Chapter 11 process.

Despite a lack of systematic public data sources that describe hedge funds' actual actions in court or in boardrooms, our search of news articles yields

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

anecdotal evidence suggesting that they do actively engage in the process. In addition to the examples referred to in Section I, two hedge funds (D.E. Shaw and Eton Park Master Fund) in the Allied Holdings case were on the unsecured creditors committee that 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.[19]

To accommodate both the selection and the 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 IV, and *Outcome* is one of the outcome variables defined earlier in this section. Econometrically, a selection problem amounts to a nonzero 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).

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 capital supply conditions of hedge fund 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

[19] 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, and "Sunbeam Creditor Committee Wants to Propose Another Plan," in *Associated Press Newswires*, April 18, 2002, respectively.

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 variation 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 only four (three) firms. 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 the earlier returns leading to the particular Chapter 11 filing that occurred, on average, 17 months ago.

When the outcome variable is binary (as in most cases), we adopt the estimation method for a "binary outcome model with a binary endogenous explanatory variable" as prescribed in Wooldridge (2002, Chapter 15.7.3). When the outcome variables are continuous (e.g., *Duration* and *DebtRecovery*), we resort to the treatment regression method as prescribed in Maddala (1983, Chapter 5.7). Both models encompass a binary and endogenous key independent variable *HFPart* (measured by *HFCreditorCommittee, HFEquityCommittee,* and *HFLTO*), and both are estimated with the Maximum Likelihood Estimation (MLE) method. Results are presented in Tables V to VII. In addition to reporting the coefficients, we provide the sign of the estimated $\rho = corr(\varepsilon, \eta)$ (i.e., the correlation of the residuals from the selection equation and the outcome equation) as well as the χ^2 statistic and associated p-value from a likelihood ratio test for the null H_0: $\rho = 0$. The test is equivalent to testing the exogeneity of hedge fund participation with regard to bankruptcy outcomes because a nonzero ρ is the source of endogeneity (see equation (1)).

We present results both from the simple probit or OLS regression models (without instrumentation for *HFPart*) and from the instrumented regressions. While our emphasis is on the latter tables, especially when the exogeneity of hedge fund participation is rejected, we reference the un-instrumented results in discussing the nature of the selection effect due to hedge funds' strategic targeting. Comparison of the treatment effects and the total effects (without instrumentation) allows us to comment on the hedge funds' ability to select firms based on unobserved characteristics.

B. Relating Bankruptcy Outcomes to Hedge Fund Presence

B.1. Hedge Fund Presence on the Unsecured Creditors Committee

Table V, Panel A, shows that hedge fund presence on the unsecured creditors committee is positively associated with all seven outcome variables, and the

Table V

Effects of Hedge Funds on Unsecured Creditors Committee

This table presents the effect of hedge fund presence on the unsecured creditors committee (*HFCreditorsCommittee*) on Chapter 11 outcomes, including (1) emergence (*Emerge*), (2) the logarithm of the number of months in bankruptcy (*Duration*), (3) the debtor's loss of exclusive rights to file a plan of reorganization after 180 days in bankruptcy (*LossExclusivity*), (4) APR deviation for secured creditors (*APRCreditor*), (5) average recovery rate of all corporate debt at plan confirmation (*DebtRecovery*), (6) CEO turnover during Chapter 11 reorganization (*CEOTurnover*), and (7) adoptions of key employee retention plan (*KERP*). Variable definitions are provided in Table I. Panel A presents results from a simple probit (when the outcome variable is binary, in Columns (1), (3), (4), (6), and (7)) or an OLS (when the outcome variable is continuous, in Columns (2) and (5)) regression model. Panel B presents results from a binary outcome model with a binary endogenous explanatory variable (when the outcome variable is binary) or a treatment regression model (when the outcome variable is continuous), as shown in equation (1). Instrumental variables in the selection equation are the lagged return on an index of distress-investing hedge funds (*DistressHFRet*) and the lagged monthly return on the S&P 500 index (*SP500Ret*), coefficients on which are reported. Also reported at the bottom of Panel B is the sign of ρ, the correlation coefficient of the residuals from the selection regression and the outcome regression, as well as the χ^2 statistic and the associated p-value from a likelihood ratio (LR) test for the null H_0: $\rho = 0$. Numbers in brackets are standard errors. ***, **, * correspond to statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1) Emerge	(2) Duration	(3) LossExclusivity	(4) APRCreditor	(5) DebtRecovery	(6) CEOTurnover	(7) KERP
				Panel A: Probit/OLS			
HFCreditorsCommittee	0.373**	0.173**	0.259	0.379**	0.011	0.158	0.324**
	[0.161]	[0.081]	[0.172]	[0.185]	[0.037]	[0.152]	[0.152]
Ln(Assets)	0.023	0.031	−0.474***	0.035	−0.020	0.140**	0.270***
	[0.072]	[0.036]	[0.100]	[0.081]	[0.017]	[0.066]	[0.071]
Leverage	0.893***	−0.133	0.006	−0.592*	−0.023	0.055	0.453**
	[0.289]	[0.118]	[0.231]	[0.302]	[0.052]	[0.237]	[0.225]
Cash	−1.712**	−0.920**	−0.455	−0.127	0.204	−1.905**	0.178
	[0.863]	[0.444]	[0.961]	[1.044]	[0.211]	[0.909]	[0.881]
Tangibility	0.162	−0.213	0.539	−1.331***	0.208***	−0.242	−0.416
	[0.337]	[0.167]	[0.350]	[0.411]	[0.074]	[0.319]	[0.321]
ROA	0.167	0.019	−0.138	−0.066	0.327**	−0.222	1.650**
	[0.663]	[0.335]	[0.654]	[0.897]	[0.149]	[0.621]	[0.703]
SecuredDebt	0.055	−0.264	−0.319	1.847***	−0.010	−0.325	0.171
	[0.360]	[0.161]	[0.340]	[0.375]	[0.070]	[0.324]	[0.309]

(continued)

Table V—*Continued*

	(1) Emerge	(2) Duration	(3) LossExclusivity	(4) APRCreditor	(5) DebtRecovery	(6) CEOTurnover	(7) KERP
Panel A: Probit/OLS							
Institution	0.121	0.149	0.356	−0.088	0.092	0.449	0.700**
	[0.319]	[0.160]	[0.343]	[0.366]	[0.071]	[0.288]	[0.303]
NumClasses	0.149***	0.024*	−0.003	0.073**	0.006	−0.001	0.038
	[0.033]	[0.014]	[0.029]	[0.031]	[0.006]	[0.026]	[0.026]
Prepack	1.230***	−1.228***	−0.089	0.325*	0.195***	−0.357**	−1.212***
	[0.194]	[0.087]	[0.181]	[0.192]	[0.038]	[0.171]	[0.178]
Delaware	−0.297*	−0.088	−0.356**	0.237	−0.020	−0.010	0.100
	[0.155]	[0.079]	[0.166]	[0.181]	[0.035]	[0.149]	[0.150]
Constant	−2.229***	2.588***	2.192***	−1.918***	0.448***	−1.439***	−2.829***
	[0.594]	[0.283]	[0.688]	[0.648]	[0.130]	[0.522]	[0.556]
N	369	369	369	369	321	362	369
Pseudo-R^2 or R^2	0.242	0.449	0.112	0.154	0.131	0.062	0.218
Panel B: Binary Outcome with a Binary Endogenous Explanatory Variable Model/Treatment Regression							
HFCreditorsCommittee	0.779	0.365	1.884***	0.743	0.500***	1.306***	−0.085
	[1.056]	[0.490]	[0.109]	[1.148]	[0.141]	[0.379]	[1.036]
Ln(Assets)	−0.004	0.019	−0.363***	0.011	−0.059**	0.046	0.290***
	[0.100]	[0.046]	[0.071]	[0.110]	[0.023]	[0.074]	[0.079]
Leverage	0.837**	−0.150	−0.179	−0.616**	−0.067	−0.057	0.480**
	[0.346]	[0.125]	[0.182]	[0.303]	[0.066]	[0.222]	[0.227]
Cash	−1.918**	−1.030**	−1.334*	−0.325	−0.155	−2.247***	0.404
	[0.966]	[0.520]	[0.745]	[1.205]	[0.278]	[0.824]	[1.039]
Tangibility	0.118	−0.234	0.017	−1.352***	0.167*	−0.331	−0.365
	[0.357]	[0.174]	[0.268]	[0.407]	[0.092]	[0.295]	[0.352]

(continued)

Table V—*Continued*

	(1) Emerge	(2) Duration	(3) LossExclusivity	(4) APRCreditor	(5) DebtRecovery	(6) CEOTurnover	(7) KERP
Panel B: Binary Outcome with a Binary Endogenous Explanatory Variable Model/Treatment Regression							
ROA	0.035	−0.040	−0.735	−0.169	0.158	−0.493	1.740**
	[0.748]	[0.364]	[0.544]	[0.945]	[0.189]	[0.584]	[0.713]
SecuredDebt	0.153	−0.217	0.265	1.909***	0.088	−0.013	0.067
	[0.441]	[0.198]	[0.265]	[0.386]	[0.090]	[0.324]	[0.407]
Institution	0.148	0.162	0.374	−0.060	0.143	0.458*	0.654*
	[0.322]	[0.162]	[0.266]	[0.375]	[0.088]	[0.270]	[0.336]
NumClasses	0.144***	0.023*	−0.007	0.070**	0.005	−0.007	0.040
	[0.039]	[0.014]	[0.022]	[0.034]	[0.007]	[0.024]	[0.026]
Prepack	1.234***	−1.214***	0.091	0.347*	0.244***	−0.218	−1.220***
	[0.199]	[0.093]	[0.138]	[0.197]	[0.049]	[0.171]	[0.180]
Delaware	−0.264	−0.076	−0.110	0.257	0.019	0.070	0.071
	[0.184]	[0.084]	[0.128]	[0.186]	[0.045]	[0.140]	[0.167]
Constant	−2.138***	2.607***	1.305***	−1.851***	0.533***	−1.073**	−2.819***
	[0.689]	[0.285]	[0.506]	[0.709]	[0.162]	[0.540]	[0.571]
IV: DistressHFRet	2.499	2.486	2.180*	2.445	2.953**	2.512*	2.428
	[1.627]	[1.626]	[1.169]	[1.643]	[1.306]	[1.521]	[1.659]
IV: SP500Ret	1.561	1.665	0.851	1.594	0.493	1.952**	1.613
	[1.024]	[1.050]	[0.624]	[1.027]	[0.871]	[0.927]	[1.028]
Sign of ρ	−	−	−	−	−	−	+
LR Test of $\rho = 0$:							
$\chi^2(2)$	0.146	0.140	8.819***	0.090	1.940	3.158*	0.164
p-value	0.702	0.709	0.003	0.764	0.163	0.076	0.685

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 taken into account, 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.

The two panels of Table V indicate an interesting combination of investment selection abilities possessed by hedge fund creditors, as well as the 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 the going concern and to instill the incentive for recovery[20]). However, in these equations the likelihood ratio test cannot reject the null hypothesis of the exogeneity of hedge fund participation (i.e., $H_0 : \rho = 0$) at conventional significance levels.

On the other hand, the debtor's loss of exclusive rights to file a reorganization plan after 180 days and higher CEO turnover rates appear to be caused by hedge fund actions. The magnitude as well as significance of *HFCreditorsCommittee* in these two outcome equations is much strengthened in the model where we control for the selection effect. Moreover, the likelihood ratio test rejects (at the 10% level or lower) the exogeneity of hedge funds' participation in favor of a negative selection (i.e., $H_a : \rho < 0$) for both outcomes. That is, hedge funds select firms in which, a priori, management has strong power over the creditors. As a result, hedge fund impact is strengthened after the selection effect is taken into account.

Such a contrast is intuitive given the confrontational nature of the two outcomes against management. The incumbent top management of the debtor would likely resist the loss of exclusivity or their jobs. It is, therefore, 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 only 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, unsecured creditors committees are usually formed in more complex bankruptcies that 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 (results are reported in the

[20] Gilson and Vetsuypens (1993) show that KERPs tie managers' pay to creditors' recoveries and the restructuring progress. See also "Worldcom Judge Approves Plan to Keep Employees," by Rebecca Blumenstein in *Wall Street Journal*, A7, October 30, 2002.

Internet Appendix). 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 unsecured creditors committee is taken into account. The combination of the results from both emergence and duration indicate that, while 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 that enjoys a lot of option value, especially when hedge funds participate in cases in which the unsecured debt is large relative to the secured (see Table IV). Given that the option value increases with duration, hedge funds may have an incentive to prolong the process.

B.2. Hedge Fund Presence on the Equity Committee

As we discuss earlier, equity committees are less common than the committees for unsecured creditors. While 85% of our sample firms form unsecured creditors committees during the restructuring process, the court appoints equity committees in only 11% of the cases. Bharath et al. (2007), while reporting an almost identical overall frequency, document a dwindling trend in the formation of equity committees after 1990. The declining role of shareholders in the Chapter 11 process is apparently matched by the rising importance of creditors in the process (Skeel (2003), Ayotte and Morrison (2009)). However, we note that, during the most recent years (2005 to 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 VI, share similarities to, as well as exhibit differences from, those related to their presence on 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 instrumented model, indicating that hedge funds constitute a strong force ousting CEOs of underperforming companies. Moreover, as in the case for hedge fund creditors, the exogeneity of hedge fund presence on the equity committee is rejected at the 1% level in favor of a negative selection ($\rho < 0$), that is, hedge fund shareholders target companies with more entrenched management. This evidence is consistent with the findings of Brav et al. (2008), who show that managerial entrenchment invites activism and 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. Table IV shows that hedge funds are more likely to have a presence on the equity committee in firms with lower leverage and higher profitability; such evidence

Table VI

Hedge Funds on Equity Committee

This table presents the effect of hedge fund presence on the equity committee (*HFEquityCommittee*) on Chapter 11 outcomes, including (1) emergence (*Emerge*), (2) the logarithm of the number of months in bankruptcy (*Duration*), (3) equity holders receiving positive payoffs (*DistEquity*), (4) average recovery rate of all corporate debt at plan confirmation (*DebtRecovery*), (5) standardized equity abnormal monthly returns from two days before filing to plan confirmation (*StkRet*), (6) CEO turnover during Chapter 11 reorganization (*CEOTurnover*), and (7) adoptions of key employee retention plan (*KERP*). Variable definitions are provided in Table I. Panel A presents results from a simple probit (when the outcome variable is binary, in Columns (1), (3), (6), and (7)) or an OLS (when the outcome variable is continuous, in Columns (2), (4), and (5)) regression model. Panel B presents results from a binary outcome model with a binary endogenous explanatory variable (when the outcome variable is binary) or a treatment regression model (when the outcome variable is continuous), as shown in equation (1). Instrumental variables in the selection equation are the lagged return on an index of distress-investing hedge funds (*DistressHFRet*) and the lagged monthly return on the S&P 500 index (*SP500Ret*), coefficients which are reported. Also reported at the bottom of Panel B is the sign of ρ, the correlation coefficient of the residuals from the selection regression and the outcome regression, as well as the χ^2 statistic and the associated p-value from a likelihood ratio (LR) test for the null H_0: $\rho = 0$. Numbers in brackets are standard errors. ***, **, * correspond to statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1) Emerge	(2) Duration	(3) DistEquity	(4) DebtRecovery	(5) StkRet	(6) CEOTurnover	(7) KERP
				Panel A: Probit/OLS			
HFEquityCommittee	0.390	0.160	1.246***	0.182***	0.157***	0.684**	−0.178
	[0.298]	[0.149]	[0.281]	[0.068]	[0.043]	[0.268]	[0.287]
Ln(Assets)	0.035	0.046	−0.075	−0.031**	−0.011	0.162***	0.312***
	[0.064]	[0.033]	[0.073]	[0.015]	[0.010]	[0.062]	[0.064]
Leverage	0.841***	−0.090	−0.025	−0.053	0.011	0.090	0.276
	[0.229]	[0.100]	[0.208]	[0.047]	[0.034]	[0.212]	[0.188]
Cash	−0.898	−0.931**	−0.376	0.145	0.041	−1.567*	0.215
	[0.774]	[0.398]	[0.906]	[0.193]	[0.127]	[0.825]	[0.768]
Tangibility	0.201	−0.116	0.883***	0.219***	0.019	−0.108	−0.260
	[0.293]	[0.148]	[0.312]	[0.067]	[0.046]	[0.292]	[0.280]
ROA	0.911*	0.001	−0.307	0.301**	0.043	0.109	1.010**
	[0.491]	[0.243]	[0.550]	[0.123]	[0.087]	[0.515]	[0.483]
SecuredDebt	0.038	−0.326**	−0.347	−0.037	−0.011	−0.659**	0.288
	[0.276]	[0.131]	[0.285]	[0.061]	[0.044]	[0.290]	[0.251]

(continued)

Table VI—*Continued*

	(1) Emerge	(2) Duration	(3) DistEquity	(4) DebtRecovery	(5) StkRet	(6) CEOTurnover	(7) KERP
			Panel A: Probit/OLS				
Institution	0.124	0.152	0.112	0.009	0.033	0.213	0.714**
	[0.291]	[0.148]	[0.332]	[0.068]	[0.050]	[0.279]	[0.278]
NumClasses	0.126***	0.015	0.044*	0.012**	0.002	0.005	0.020
	[0.028]	[0.012]	[0.026]	[0.006]	[0.004]	[0.024]	[0.023]
Prepack	1.154***	−1.242***	1.205***	0.193***	0.027	−0.383**	−0.978***
	[0.171]	[0.078]	[0.157]	[0.035]	[0.026]	[0.159]	[0.155]
Delaware	−0.204	−0.117*	0.140	0.008	0.021	0.001	0.188
	[0.136]	[0.070]	[0.151]	[0.032]	[0.023]	[0.137]	[0.132]
Constant	−2.152***	2.616***	−1.526***	0.509***	−0.048	−1.591***	−2.870***
	[0.508]	[0.250]	[0.557]	[0.116]	[0.079]	[0.483]	[0.489]
N	459	459	459	388	334	442	459
Pseudo-R^2 or R^2	0.210	0.435	0.199	0.155	0.054	0.079	0.163
			Panel B: Binary Outcome with a Binary Endogenous Explanatory Variable Model/Treatment Regression				
HFEquityCommittee	1.205*	−0.548*	−0.334	0.186	0.135**	2.332***	0.279
	[0.661]	[0.324]	[0.470]	[0.224]	[0.065]	[0.166]	[0.961]
Ln(Assets)	0.020	0.056*	−0.031	−0.031**	−0.011	0.127**	0.304***
	[0.065]	[0.034]	[0.071]	[0.015]	[0.010]	[0.058]	[0.068]
Leverage	0.878***	−0.123	−0.115	−0.052	0.009	0.140	0.296
	[0.229]	[0.102]	[0.207]	[0.048]	[0.034]	[0.207]	[0.191]
Cash	−0.762	−1.032**	−0.538	0.146	0.037	−1.309*	0.281
	[0.778]	[0.405]	[0.875]	[0.191]	[0.125]	[0.784]	[0.776]
Tangibility	0.246	−0.161	0.730**	0.220***	0.018	−0.043	−0.229
	[0.291]	[0.151]	[0.311]	[0.068]	[0.046]	[0.281]	[0.286]

(continued)

Table VI—*Continued*

	(1) Emerge	(2) Duration	(3) DistEquity	(4) DebtRecovery	(5) StkRet	(6) CEOTurnover	(7) KERP
Panel B: Binary Outcome with a Binary Endogenous Explanatory Variable Model/Treatment Regression							
ROA	0.898*	0.013	−0.207	0.301**	0.043	0.189	1.002**
	[0.491]	[0.246]	[0.541]	[0.121]	[0.086]	[0.506]	[0.483]
SecuredDebt	0.001	−0.302**	−0.268	−0.038	−0.009	−0.690**	0.269
	[0.276]	[0.133]	[0.278]	[0.061]	[0.043]	[0.273]	[0.254]
Institution	−0.037	0.285*	0.459	0.008	0.038	−0.116	0.628*
	[0.316]	[0.160]	[0.334]	[0.082]	[0.050]	[0.266]	[0.331]
NumClasses	0.123***	0.016	0.043*	0.012**	0.002	0.001	0.019
	[0.028]	[0.013]	[0.024]	[0.005]	[0.004]	[0.023]	[0.023]
Prepack	1.106***	−1.227***	1.160***	0.193***	0.028	−0.375**	−0.980***
	[0.179]	[0.079]	[0.158]	[0.035]	[0.026]	[0.152]	[0.155]
Delaware	−0.179	−0.132*	0.093	0.008	0.020	0.046	0.196
	[0.137]	[0.071]	[0.146]	[0.032]	[0.023]	[0.132]	[0.132]
Constant	−2.075***	2.598***	−1.612***	0.509***	−0.049	−1.374***	−2.838***
	[0.513]	[0.253]	[0.528]	[0.115]	[0.078]	[0.460]	[0.500]
IV: DistressHFRet	10.134***	9.414***	10.542***	8.962**	9.383**	9.671***	10.035***
	[3.691]	[3.477]	[3.165]	[4.116]	[3.965]	[3.210]	[3.674]
IV: SP500Ret	4.066**	4.216**	3.348**	5.100**	4.366**	3.624***	4.058**
	[1.742]	[1.661]	[1.575]	[2.103]	[1.942]	[1.389]	[1.739]
Sign of ρ	−	+	+	−	+	−	−
LR Test of $\rho = 0$:							
$\chi^2(2)$	1.220	2.210	4.129**	0.001	0.180	9.815***	0.204
p-value	0.269	0.138	0.042	0.985	0.674	0.001	0.652

suggests firm-picking by the hedge funds. Table VI 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 instrumented model, which is also supportive of a causal relation.

The ultimate payoff to hedge fund equity holders can be summarized by the variable *DistEquity*, which indicates the occurrence of a distribution to existing shareholders and happens in 21% of the cases. Hedge fund presence on the equity committee is associated with a 43 percentage point increase in the probability of a positive distribution to existing equity holders, controlling for firm and case characteristics. The effect is rendered insignificant when the instrumented model is employed. Similarly, the log-likelihood ratio test rejects the exogeneity of hedge fund participation at the 5% level in favor of a positive selection. Together these results offer strong evidence in support of hedge funds' ability to pick stocks of distressed firms with better prospects for existing shareholders, but offer less evidence for hedge funds' activist role in making the distribution happen.

We next make 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 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 (results are reported in the Internet Appendix), 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, in contrast to *HFEquityCommittee, HFJoint5%* does not bear a significant relation with *DistEquity* (results are reported in the Internet Appendix). Such a difference points to the importance of hedge fund actions (through their committee involvement) beyond their being mere investors. We also refine the finding of Bharath et al. (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 own effect. Indeed, the coefficient on *HFEquityCommittee* retains its significance even if the existence of an equity committee is controlled for.

A subset of the sample in which we observe stock returns during the Chapter 11 process should directly indicate how hedge funds' presence as major equity holders is related to the returns to 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 from both CRSP and the OTC/pink-sheet markets. We supplement the calculation of stock returns using information about distributions 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 VI shows that the coefficients on *HFEquityCommittee* are statistically significant (at the 5% level or better) and economically large (between 14 and 16 percentage points), regardless of whether the selection effect is taken into account. 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 existing shareholders of the bankrupt firms.

B.3. Hedge Fund Pursuance of Loan-to-Own

Table VII 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 V and VI, 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 *HFLTO* favors emergence cases due to the requirement that hedge fund creditors become shareholders ex post.

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 V, the effects are significant (at the 1% level) on the debtor's loss of exclusivity, debt recovery, and CEO turnover in the instrumented model, and the test for the exogeneity of hedge fund participation rejects the null in favor of a significant negative selection. All these relations indicate that the loan-to-own players act like unsecured creditors in exerting their influence over management. 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.

B.4. Relations among Hedge Funds' Different Roles

Tables V to VII 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 that arises is whether hedge funds' influence from one position works against the interests of another class of claim holders. Given the lack of shareholder power in bankruptcy relative to creditors, it is especially important to analyze the relation between hedge fund presence as creditors and the value implications for existing equity holders. To address 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

Table VII

Hedge Funds Loan-to-Own

This table presents the effect of hedge funds adopting a loan-to-own strategy (*HFLTO*) on Chapter 11 outcomes, including (1) the logarithm of the number of months in bankruptcy (*Duration*), (2) debtor's loss of exclusive rights to file a plan of reorganization after 180 days in bankruptcy (*LossExclusivity*), (3) APR deviation for secured creditors (*APRCreditor*), (4) equity holders receiving positive payoffs (*DistEquity*), (5) average recovery rate of all corporate debt at plan confirmation (*DebtRecovery*), (6) CEO turnover during Chapter 11 reorganization (*CEOTurnover*), and (7) adoptions of key employee retention plan (*KERP*). Variable definitions are provided in Table I. Panel A presents results from a simple probit (when the outcome variable is binary, in Columns (2), (3), (4), (6), and (7)) or an OLS (when the outcome variable is continuous, in Columns (1) and (5)) regression model. Panel B presents results from a binary outcome model with a binary endogenous explanatory variable (when the outcome variable is binary) or a treatment regression model (when the outcome variable is continuous), as shown in equation (1). Instrumental variables in the selection equation are the lagged return on an index of distress-investing hedge funds (*DistressHFRet*) and the lagged monthly return on the S&P 500 index (*SP500Ret*), coefficients which are reported. Also reported at the bottom of Panel B is the sign of ρ, the correlation coefficient of the residuals from the selection regression and the outcome regression, as well as the χ^2 statistic and the associated p-value from a likelihood ratio (LR) test for the null H_0: $\rho = 0$. Numbers in brackets are standard errors. ***, **, * correspond to statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1) Duration	(2) LossExclusivity	(3) APRCreditor	(4) DistEquity	(5) DebtRecovery	(6) CEOTurnover	(7) KERP
				Panel A: Probit/OLS			
HFLTO	0.050	−0.084	0.668***	0.328**	0.059	−0.141	0.298*
	[0.085]	[0.182]	[0.182]	[0.166]	[0.037]	[0.165]	[0.159]
Ln(Assets)	0.048	−0.391***	0.069	−0.092	−0.035**	0.153**	0.271***
	[0.035]	[0.089]	[0.078]	[0.074]	[0.016]	[0.063]	[0.067]
Leverage	−0.118	−0.029	−0.390	−0.214	−0.042	0.144	0.324
	[0.111]	[0.217]	[0.271]	[0.226]	[0.050]	[0.222]	[0.206]
Cash	−0.934**	−0.111	0.082	−1.046	0.135	−2.114**	0.064
	[0.414]	[0.845]	[1.013]	[0.940]	[0.199]	[0.861]	[0.792]
Tangibility	−0.199	0.434	−1.506***	0.740**	0.204***	−0.248	−0.308
	[0.158]	[0.325]	[0.402]	[0.318]	[0.070]	[0.301]	[0.296]
ROA	−0.092	−0.311	−0.132	−0.839	0.326**	−0.127	0.902
	[0.295]	[0.550]	[0.772]	[0.613]	[0.140]	[0.593]	[0.553]
SecuredDebt	−0.333**	−0.476	1.730***	−0.308	0.017	−0.543*	0.390
	[0.147]	[0.310]	[0.329]	[0.304]	[0.064]	[0.304]	[0.277]

(continued)

Table VII—*Continued*

	(1) Duration	(2) LossExclusivity	(3) APRCreditor	(4) DistEquity	(5) DebtRecovery	(6) CEOTurnover	(7) KERP
Panel A: Probit/OLS							
Institution	0.147	0.065	−0.203	0.694**	0.095	0.542**	0.757***
	[0.153]	[0.324]	[0.356]	[0.317]	[0.067]	[0.276]	[0.285]
NumClasses	0.021	−0.001	0.054*	0.029	0.005	0.004	0.023
	[0.014]	[0.028]	[0.030]	[0.026]	[0.006]	[0.026]	[0.026]
Prepack	−1.233***	−0.064	0.170	1.172***	0.190***	−0.331**	−1.197***
	[0.084]	[0.172]	[0.182]	[0.165]	[0.036]	[0.164]	[0.169]
Delaware	−0.113	−0.400***	0.286*	0.112	−0.027	−0.048	0.103
	[0.074]	[0.155]	[0.171]	[0.153]	[0.033]	[0.141]	[0.138]
Constant	2.594***	1.952***	−2.105***	−1.128**	0.573***	−1.510***	−2.626***
	[0.273]	[0.635]	[0.624]	[0.569]	[0.124]	[0.505]	[0.524]
N	416	416	416	416	359	407	416
Pseudo-R^2 or R^2	0.434	0.093	0.174	0.166	0.143	0.067	0.191
Panel B: Binary Outcome with a Binary Endogenous Explanatory Variable Model/Treatment Regression							
HFLTO	0.328	1.604***	−0.179	1.106	0.709***	1.086***	−0.176
	[0.569]	[0.285]	[0.771]	[0.737]	[0.0704]	[0.389]	[0.781]
Ln(Assets)	0.032	−0.381***	0.116	−0.129*	−0.074***	0.065	0.290***
	[0.046]	[0.079]	[0.084]	[0.077]	[0.022]	[0.068]	[0.070]
Leverage	−0.148	−0.172	−0.256	−0.286	−0.103	0.012	0.367*
	[0.127]	[0.192]	[0.299]	[0.224]	[0.068]	[0.209]	[0.213]
Cash	−0.872**	0.012	−0.169	−0.865	0.280	−1.670**	−0.054
	[0.432]	[0.776]	[1.012]	[0.929]	[0.270]	[0.830]	[0.810]
Tangibility	−0.240	0.110	−1.248**	0.581	0.107	−0.363	−0.234
	[0.179]	[0.298]	[0.512]	[0.355]	[0.095]	[0.283]	[0.322]
ROA	−0.100	−0.374	−0.114	−0.820	0.328*	−0.033	0.899
	[0.295]	[0.498]	[0.732]	[0.601]	[0.190]	[0.560]	[0.550]

(continued)

Table VII—*Continued*

	(1) Duration	(2) LossExclusivity	(3) APRCreditor	(4) DistEquity	(5) DebtRecovery	(6) CEOTurnover	(7) KERP
Panel B: Binary Outcome with a Binary Endogenous Explanatory Variable Model/Treatment Regression							
ROA	−0.100	−0.374	−0.114	−0.820	0.328*	−0.033	0.899
	[0.295]	[0.498]	[0.732]	[0.601]	[0.190]	[0.560]	[0.550]
SecuredDebt	−0.285	−0.140	1.442***	−0.147	0.127	−0.300	0.299
	[0.177]	[0.283]	[0.495]	[0.337]	[0.087]	[0.297]	[0.318]
Institution	0.153	0.116	−0.209	0.665**	0.109	0.482*	0.729**
	[0.153]	[0.279]	[0.340]	[0.314]	[0.091]	[0.264]	[0.291]
NumClasses	0.014	−0.042*	0.074**	0.007	−0.012	−0.031	0.035
	[0.020]	[0.025]	[0.032]	[0.034]	[0.008]	[0.026]	[0.031]
Prepack	−1.266***	−0.201	0.262	1.015***	0.133***	−0.416***	−1.113***
	[0.107]	[0.149]	[0.190]	[0.259]	[0.050]	[0.152]	[0.248]
Delaware	−0.116	−0.328**	0.280*	0.103	−0.045	−0.044	0.106
	[0.074]	[0.139]	[0.166]	[0.148]	[0.045]	[0.132]	[0.137]
Constant	2.727***	2.191***	−2.440***	−0.706	0.878***	−0.714	−2.792***
	[0.382]	[0.541]	[0.629]	[0.695]	[0.170]	[0.574]	[0.548]
IV: DistressHFRet	4.466**	3.871**	5.013***	4.697***	4.803***	5.072***	4.568**
	[1.919]	[1.719]	[1.757]	[1.736]	[1.312]	[1.654]	[1.786]
IV: SP500Ret	0.590	−0.121	0.136	0.476	0.250	0.635	0.575
	[1.099]	[0.934]	[1.067]	[1.036]	[0.700]	[0.972]	[1.069]
Sign of ρ	−	−	+	−	−	−	+
LR Test of $\rho = 0$:							
$\chi^2(2)$	0.210	4.637**	1.089	0.615	18.210***	4.023**	0.385
p-value	0.646	0.031	0.297	0.433	0.000	0.045	0.535

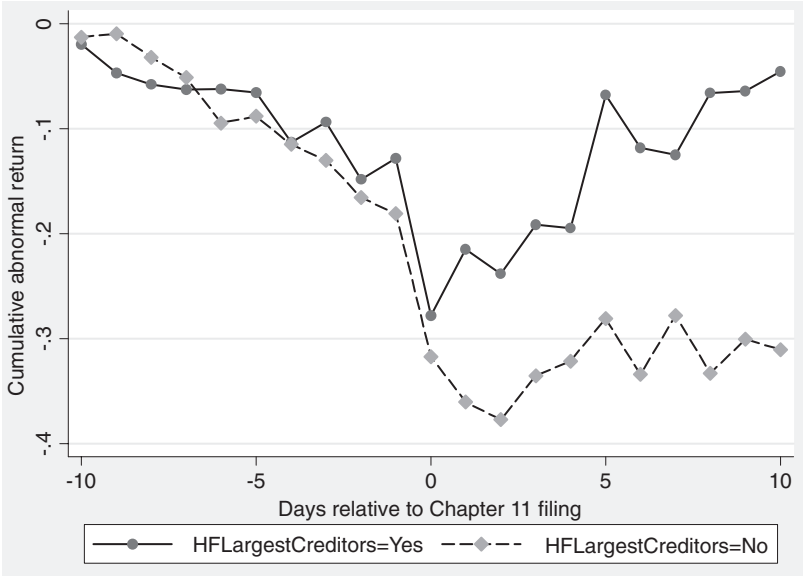

Figure 1. Event study around Chapter 11 filing. This figure shows the CARs (adjusted by the CRSP equal-weighted return) from the 10 days before to the 10 days after a Chapter 11 filing. The solid line represents CARs for 75 cases with at least one hedge fund listed as the largest unsecured creditor. The dashed line represents CARs for 202 cases without any hedge fund listed as the largest unsecured creditor.

forward looking, they should incorporate information that is predictive of the effect of hedge funds on future outcomes.

In 277 of our sample cases information is available for both hedge fund presence and stock returns. We separate this event sample into two groups: 75 cases in which hedge funds are listed among the largest unsecured creditors on the petition forms on the day of bankruptcy filing, and 202 cases that have no publicly known hedge fund involvement on the debt side. Figure 1 plots the cumulative abnormal returns (CARs; using the CRSP equal-weighted return as the benchmark) of both groups for 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 among the largest unsecured creditors experiences price increases, while the group without hedge fund presence continues to experience price declines.

Table VIII presents the same result using univariate and multivariate regressions where the dependent variables are CARs over two event windows: [−10, +10] and [−5, +5]. The key independent variable of interest is hedge funds' presence as largest unsecured creditors (*HFLargestCreditor*), which is the only debt-side participation variable that is known at the time of a bankruptcy filing. The univariate results confirm the message of Figure 1 (a 15 to 20 percentage point difference). Motivated by Bris et al. (2006), we include the following

Table VIII
Market Reactions to Chapter 11 Filing

This table presents OLS regression results examining the determinants of CARs (adjusted by the CRSP equal-weighted return) measured over two event windows around Chapter 11 filing. Columns (1) and (3) present univariate regression results, and Columns (2) and (4) include control variables. Variable definitions are provided in Table I. Numbers in brackets are standard errors. ***, **, * correspond to statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1) CAR[−5, +5]	(2) CAR[−5, +5]	(3) CAR[−10, +10]	(4) CAR[−10, +10]
HFLargestCreditors	0.168**	0.220**	0.247**	0.323***
	[0.085]	[0.100]	[0.099]	[0.115]
AssetsChange		0.311**		0.245
		[0.142]		[0.164]
CBLenders		−0.084		−0.015
		[0.106]		[0.121]
Ln(Assets)		−0.048		−0.065
		[0.036]		[0.042]
NumClasses		0.010		0.010
		[0.014]		[0.016]
Prepack		0.066		0.076
		[0.099]		[0.113]
Delaware		−0.029		0.070
		[0.091]		[0.104]
Constant	−0.185***	0.165	−0.315***	0.042
	[0.044]	[0.273]	[0.051]	[0.315]
N	274	202	277	205
R^2	0.014	0.068	0.022	0.077

control variables: the difference between Compustat-reported book assets at the last fiscal year-end and the value at the time of bankruptcy filing, scaled by the former; the presence of banks among the secured creditors; the number of claim classes; an indicator variable for prepackaged Chapter 11; an indicator variable for filing in Delaware; and firm size (log book assets). Except for the conventional size control, most covariates represent new information revealed upon the bankruptcy filing that could potentially impact the returns over the announcement window.

We find that the coefficient on *HFLargestCreditors* remains significant, and becomes even bigger in magnitude (20 to 30 percentage points) in the presence of control variables, suggesting that the market perceives hedge funds to be the largest unsecured creditors favorable to the shareholders of Chapter 11 firms. As expected, the change in assets from the last annual filing to the SEC to Chapter 11 filing is positively related to announcement returns (significant at the 5% level using the [−5, +5] window). Prepackaged Chapter 11 is also greeted favorably by the stock market, though the effect (about 7 to 8 percentage points), while economically meaningful, is statistically insignificant. Finally, commercial banks being among the secured creditors and the Delaware venue choice do not have a meaningful return effect.

Results in Table VIII 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.

B.5. Effects of Other Firm and Case Characteristics

In addition to the effects of hedge fund involvement on bankruptcy outcomes, Tables V to VII also relate other firm and case characteristics to outcomes. Given that these relations are not central to our analysis and that most of our results are consistent with the prior literature (Bris et al. (2006), Bharath et al. (2007), Lemmon et al. (2009)), we only briefly summarize some interesting results below.

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 in the future. Both relations are indicative of the overall efficiency of the Chapter 11 process, as shown in Lemmon et al. (2009). 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, which leads to fewer conflicts among themselves and, in turn, faster resolution.

Third, cases with many classes of claims favor reorganization. This result might seem counterintuitive, in that having more claim classes tends to make negotiations more difficult. Bolton and Scharfstein's (1996) model illustrates inefficient renegotiation following a default with multiple creditors. Welch (1997) provides a rationale for concentrated bank debt to be senior and dispersed public debt to be junior in reducing rent-seeking and avoiding deadweight loss in the bankruptcy process. On the other hand, our finding is consistent with the general goal of bankruptcy courts, which is 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 distributions to many classes in order to provide payments to the most senior classes. As a result, courts are more likely to lean toward reorganization.

B.6. Sensitivity Analyses

We conduct several sensitivity analyses to supplement our main results. First, we examine the relation between hedge fund presence and the likelihood of a company re-entering Chapter 11 after emergence (i.e., "Chapter 22"), which happens in 52 of the 286 emergence cases in our sample. Tables V and

Table IX

Ordered Probit Analysis of Chapter 11 Outcomes

This table presents the ordered probit regression results examining the determinants of Chapter 11 outcomes. The outcome of emergence and no re-filing is coded as the high outcome (= 3), emergence with later re-filing is coded as the medium outcome (= 2), and liquidation (or acquisition) in the first round is coded as the low outcome (= 1). Variable definitions are provided in Table I. Numbers in brackets are standard errors. ***, **, * correspond to statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)
HFCreditorsCommittee	0.354**		
	[0.138]		
HFEquityCommittee		0.422	
		[0.270]	
HFLTO			0.931***
			[0.152]
Ln(Assets)	0.047	0.052	0.03
	[0.064]	[0.059]	[0.063]
Leverage	0.411**	0.511***	0.443**
	[0.205]	[0.179]	[0.198]
Cash	−1.422*	−0.703	−0.818
	[0.765]	[0.702]	[0.734]
Tangibility	0.123	0.163	−0.102
	[0.290]	[0.259]	[0.278]
ROA	−0.221	0.591	0.182
	[0.557]	[0.429]	[0.497]
SecuredDebt	−0.002	0.028	0.206
	[0.281]	[0.233]	[0.258]
Institution	0.163	0.167	0.289
	[0.275]	[0.258]	[0.269]
NumClasses	0.133***	0.117***	0.105***
	[0.028]	[0.024]	[0.028]
Prepack	0.805***	0.752***	0.644***
	[0.152]	[0.137]	[0.147]
Delaware	−0.258*	−0.209*	−0.290**
	[0.133]	[0.121]	[0.129]
N	369	459	416
Pseudo-R^2	0.122	0.114	0.157

VI indicate that hedge funds favor emergence over liquidation (or acquisition). If their preference leads to underliquidation, in that firms with weak prospects are saved when liquidation would lock in a higher value, then we should observe a positive association between hedge fund presence and the incidence of Chapter 22. An ordered probit analysis, reported in Table IX, indicates that this is not the case.

In the ordered probit analysis, the outcome of emergence and no re-filing is coded as the high outcome (= 3), emergence with later re-filing is coded as the medium outcome (= 2), and liquidation (or acquisition) in the first round is coded as the low outcome (= 1). The coefficients on all three measures of hedge fund participation (*HFCreditorsCommittee, HFEquityCommittee,* and

HFLTO) are positive, two of which are significant (at the 1% level). The results support a positive relation between hedge funds' involvement and eventual survival rather than a hedge fund bias toward underliquidating ex post unviable companies.

Second, we are able to replicate our main results on the subsample excluding pre-packs. Results are presented in the Internet Appendix. Pre-packs are potentially very different from regular Chapter 11 cases. In the Internet Appendix we relate hedge fund presence as the largest unsecured creditors[21] to the choice of pre-pack, and show that hedge funds do not exhibit any significant preference for prepack versus fighting in court. Therefore, using pre-pack as a control variable should not interfere with the effect of hedge funds. In the Internet Appendix we also examine the relation between hedge fund presence as the largest unsecured creditors and the likelihood of an involuntary filing (occurring less than 5% of the time). Again we find no significant hedge fund effect.

Finally, to ensure that our results are not driven by the "credit boom" years of 2005 to early 2007 or affected by the Bankruptcy Abuse Prevention and Consumer Protection Act (BAPCPA) in effect since 2005,[22] in the Internet Appendix we replicate Tables V to VII by restricting attention to the subsample spanning 1996 to 2004. Again, results are qualitatively similar.

C. Summary of Hedge Funds' Roles in Bankruptcy

To summarize Tables V to VIII, 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 (2011)). 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.

Though hedge funds are often perceived as antimanagement, our study reveals a more subtle picture whereby hedge funds could be better described as transforming the traditional "management-driven" restructuring process to a "management neutral" (rather than "senior creditor control") process, a trend articulated by Skeel (2003), Harner (2008a), and Ayotte and Morrison (2009). Despite the high average CEO turnover rate of 27% in our sample, this number is lower than the 33% to 75% range reported in earlier studies (see Gilson

[21] We could not use our default measure of hedge funds' presence on the unsecured creditors committee because the committee is usually formed during Chapter 11.

[22] Two major changes have been brought by BAPCPA. First, BAPCPA curbs the usage of KERP. Second, debtors have exclusive rights to file a reorganization plan for only 18 months after a Chapter 11 filing, instead of enjoying potentially unlimited extensions.

(1989), Gilson and Vetsuypens (1993), Betker (1995), Hotchkiss (1995)). Though hedge fund presence is associated with high CEO turnover, hedge funds are equally eager to retain key employees through KERP. KERP rose from about a quarter of the filings in 1996 to about half towards the end of our sample period in 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.[23] Hedge funds (including Blue River Capital and Cerberus Capital), which 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.

Several of our findings are strongly suggestive of a favorable effect of hedge funds on firm value. The event study presented in Table VIII 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 funds' presence as the largest unsecured creditors remains. Such evidence combined with the positive relation between hedge fund presence and debt recovery (as shown in Table V) supports 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.

Examining 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); results are reported in the Internet Appendix. Combined with

[23] For a more detailed story, see "Worldcom Judge Approves Plan to Keep Employees," by Rebecca Blumenstein in the *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.

results from Table IX regarding the likelihood of re-filing, this suggests that hedge fund involvement is most conducive to reducing financial constraints faced by distressed firms. Such a pattern is consistent with practitioners' view about hedge funds picking firms with "good fundamentals" but "bad balance sheets," and echoes the results in Table V, which shows that firms that emerge tend to be those suffering from financial distress but that have strong operating performance.

V. 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, greater CEO turnover, and more frequent adoptions of KERP. We further establish the causal effects of hedge funds, especially in their role as creditors, through instrumentation for hedge fund participation. 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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