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Cashing out: The Rise of M&A in Bankruptcy

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Abstract: The use of M&A in bankruptcy has increased dramatically in recent years, leading to concerns that the Chapter 11 process has shifted toward excessive liquidation of viable firms. In this paper, we argue that the rise of M&A has blurred traditional distinctions between "reorganization" and "liquidation". We examine the drivers of M&A activity, based on factors specific to Chapter 11 as well as more general factors that drive M&A waves for non-distressed firms. M&A in bankruptcy is counter-cyclical, and is more likely when the costs of financing a reorganization are greater than financing costs to a potential acquirer. Consistent with a senior creditor liquidation bias, the greater use of secured debt leads to more sales in bankruptcy – but, this result holds only for sales that preserve going concern value. We also show that overall creditor recovery rates are higher, and unsecured creditor recoveries and post-bankruptcy survival rates are not different, when bankrupt firms sell businesses as going concerns.

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Abstract: The use of M&A in bankruptcy has increased dramatically in recent years, leading to concerns that the Chapter 11 process has shifted toward excessive liquidation of viable firms. In this paper, we argue that the rise of M&A has blurred traditional distinctions between "reorganization" and "liquidation". We examine the drivers of M&A activity, based on factors specific to Chapter 11 as well as more general factors that drive M&A waves for non-distressed firms. M&A in bankruptcy is counter-cyclical, and is more likely when the costs of financing a reorganization are greater than financing costs to a potential acquirer. Consistent with a senior creditor liquidation bias, the greater use of secured debt leads to more sales in bankruptcy – but, this result holds only for sales that preserve going concern value. We also show that overall creditor recovery rates are higher, and unsecured creditor recoveries and post-bankruptcy survival rates are not different, when bankrupt firms sell businesses as going concerns.

1. Introduction

An immediate consequence of the financial crisis was the virtual disappearance of traditional M&A activity. With massive losses in equity markets, the general flight of credit, and widespread pessimism over the real economy, financing and enthusiasm for doing deals all but dried up. From the second to the fourth quarter of 2007, the value of announced M&A deals in the U.S. fell by more than half, marking an end to a record merger wave.[1]

The years following the onset of the crisis demonstrated, however, that M&A deal making was alive and well – in Chapter 11. During 2008-2010, 455 U.S. public companies filed for Chapter 11 bankruptcy, representing over $1.8 trillion of reported assets – more than the corresponding total for the prior *20 years*.[2] In the sample we study in this paper alone, between 2008 and 2010 over $100 billion of corporate assets are sold by firms operating under bankruptcy court protection. While many of the firms sold in bankruptcy have come to epitomize the crisis – Lehman Brothers, Chrysler, General Motors, AIG – M&A activity in bankruptcy goes far beyond this short list, and is in fact part of a longer secular trend.

In this paper, we provide a new perspective on the use of M&A in bankruptcy. Specifically, we examine the following questions:

- What factors are related to the probability that firms merge or sell assets, rather than pursue a traditional stand-alone reorganization?
- Can the use of M&A in bankruptcy be explained by the same factors, such as liquidity constraints and industry shocks, which have been shown in recent research to drive M&A waves in general?
- Is the shift towards M&A in bankruptcy as a means of resolving distress driven instead by unique features of the U.S. bankruptcy process?

We first provide descriptive evidence on the use of M&A in bankruptcy for a sample of 350 public firms that filed for Chapter 11 between 2002 and 2011, based on an extensive analysis of bankruptcy court documents, news sources, and corporate filings. In virtually all cases, "M&A" means the sale of some or

[1] Source: Dealogic M&A Review, January 2008.
[2] Source: Thomson One.

all of the debtor firm's assets for cash. Such sales can be part of a formal plan of reorganization, but more often they are undertaken using a special section of the U.S. Bankruptcy Code – Section 363 – that can greatly facilitate these sales. Control over assets can also be transferred through a merger of companies, such as occurred recently between US Airways and bankrupt American Airlines, though such transactions are uncommon in our sample. And sometimes most or all of the debtor's assets are liquidated, either as part of a "liquidating" plan (approved by a vote of creditors), or because the debtor fails to reorganize under Chapter 11 and is redirected to Chapter 7.

The variety of ways in which assets are restructured in bankruptcy suggests that the traditional distinction between "reorganization" and "liquidation" in the academic literature – and the presumption that asset sales/liquidations generate less value for creditors than reorganizations – has become increasingly less meaningful.[3] This distinction is further blurred when investors buy debt in a bankrupt firm with the goal of exchanging it for a controlling equity stake under a plan of reorganization. This strategy gives the investor effective control of the assets, and economic ownership that is equivalent to having purchased the business directly in a Section 363 sale. Recognizing that reorganization and (partial) liquidation are not mutually exclusive outcomes, our analysis focuses on a somewhat different outcome – whether going concern value is preserved in the sale.[4]

We first describe important characteristics of asset sales that are unique to the M&A process in bankruptcy. As we explain more fully below, Section 363 can greatly increase the attractiveness of selling assets, both by reducing buyers' legal risks and by increasing sellers' expected net proceeds by conducting the sale in a court-supervised competitive auction. The extent to which Section 363 facilitates sales will be

[3] Inefficient liquidations are a key aspect of models such as Bolton and Scharfstein (1996) and Hart and Moore (1998). Mandated auctions, as an alternative to bankruptcy reorganizations, are described by Aghion, Hart and Moore (1992). Hotchkiss and Mooradian (2003) show that a voluntary (rather than mandatory) auction regime can improve the efficiency of asset redeployment outcomes.

[4] Over the past decade, this debate has become increasingly relevant for the U.S., where it has been suggested that asset sales have come to replace traditional reorganization as the primary means of resolving financial distress (Baird and Rasmussen (2002), Eckbo and Thornburn (2009), Ayotte and Morrison (2009)). Baird and Rasmussen (2002) speculate that "corporate reorganizations have all but disappeared."

affected by factors such as the number of bidders who participate in the auction, the degree of creditor involvement in the sale process, and the complexity of the firm's liabilities.

We next propose and test empirical hypotheses regarding what economic and legal factors drive firms' incentives to sell assets in bankruptcy. These factors fall into six categories, and are motivated by the academic literature on M&A and asset sales: economic (industry) shocks; buyer liquidity constraints; seller economic versus financial distress; costs of financial distress; senior creditor control; and the complexity of liabilities.

Economic (industry) shocks: When an industry experiences a significant exogenous economic shock, the incentive to reallocate assets within the industry will be greater and we expect more M&A activity (Mitchell and Mulherin (1996)). In our sample of bankrupt firms, economic shocks are predominantly negative.

Liquidity: Harford (2005) finds that industry shocks impact the propensity to merge mainly when potential buyers have sufficient liquidity to finance acquisitions. Liquidity constraints may be even more binding if buyers of bankrupt firms are more likely to come from the same industry and distress is clustered within industries (Shleifer and Vishny (1992, 2011)). From the perspective of the bankrupt firm, the alternative to a sale of assets is to finance a reorganization – requiring so called 'exit' financing to fund the operations of the restructured firm. Thus, when exit financing is more costly relative to acquisition financing, we expect more M&A activity in bankruptcy.

Degree of economic versus financial distress: Although Chapter 11 is designed to help firms generate higher cash flows that can be used to invest in the business, pay vendors, and/or finance a plan of reorganization, if the degree of economic distress is sufficiently severe, a stand-alone reorganization may not be viable. This implies a greater incidence of liquidations or sales, unless severe economic distress also impacts the most likely buyers. When firms are financially but not economically distressed, a Chapter 11 reorganization may provide an attractive opportunity to reduce debt and emerge with their operating assets intact.

Costs of financial distress: Selling assets can arguably preserve more value for firms that face greater costs of financial distress in bankruptcy. We refer to this explanation as the 'melting ice cube' theory (Jacoby and Janger (2014)). Proponents of an expedited sale can argue in court that the sale is needed to avoid losses in firm value that would occur during a longer stay in Chapter 11.

Senior creditor control: A growing number of academics and practitioners have argued that senior secured creditors have become increasingly powerful in Chapter 11 relative to management. These creditors may have incentive to force the sale of assets to repay their claims even if this means selling at fire sale prices, at the expense of more junior claimants (Baird and Rasmussen (2002, 2010), Skeel (2003), Miller and Shai (2004), Westbrook (2004), Ayotte and Morrison (2009), Adler et al. (2012)).[5] This shift in the balance of power is said to be the result of distressed-debt investors, particularly hedge funds, which increasingly acquire large positions in the senior debt of bankrupt firms, thus forming concentrated voting blocks.[6] These investors have also become a significant source of debtor-in-possession (DIP) financing for firms in Chapter 11; the terms of the DIP financing may explicitly require the firm to sell assets within a short window, or grant the lender the right to acquire the assets by "credit bidding" its loan. Thus, when senior creditors are more powerful, we expect more assets will be sold – possibly, but not necessarily, for less than they would be worth in a stand-alone reorganization.

Complexity of liabilities: The complexity of the firm's liabilities can determine the preferred channel to preserve, or in some cases gain control, of the company. If liabilities are difficult or take longer to renegotiate, or the outcome of negotiations is more uncertain, an acquisition of assets becomes relatively more attractive. Characteristics that often lead to longer cases and less certain outcomes are the complexity of the firm's capital structure, claims such as underfunded pensions, and the number of competing claims that are involved in the plan negotiations. A related concern is whether the bankruptcy judge who oversees

[5] Increased pressure to sell assets in Chapter 11 has also been noted by the news media (Palank (2013)) and is currently under review by the American Bankruptcy Institute's Bankruptcy Reform Commission (http://commission.abi.org/).
[6] The strategies used by hedge funds to invest in financially distressed firms are discussed by Hotchkiss and Mooradian (1997), Gilson (2010), Jiang et al. (2010), Li and Wang (2014), and Ivashina, Iverson and Smith (2014), and Feldhütter, Hotchkiss, and Karakaş.

the case is burdened by a relatively higher caseload, increasing the time needed to complete a reorganization (Iverson (2014)).

We use proxies for each of these six factors to empirically examine the determinants of Section 363 sales. In our sample of 350 Chapter 11 cases, 184 cases (53%) involve a Section 363 sale of some kind. The proportion of cases involving sales is counter-cyclical, peaking in the downturns of the early 2000's and in the financial crisis. Perhaps our most striking finding is that the incidence of these sales is increasing in the firm's secured debt ratio at filing, consistent with the argument that senior lenders prefer to be cashed out via these transactions rather than maintaining their claims in a reorganization. This result is robust to alternative proxies for senior lender control, and to several approaches addressing endogeneity concerns.

Market and industry conditions and the liquidity of potential acquirers are also important in explaining sales activity, but in a quite different way than has been documented for non-distressed M&A. As expected, both positive and negative industry shocks are associated with a higher incidence of sales. But, in contrast to prior research, the interaction of such shocks with market borrowing rates – a proxy for the cost of financing to potential acquirers – is positive. We find that what is important in our setting is the relative cost of financing to potential acquirers versus the cost of financing to a reorganized firm, which we measure as the difference in B and BBB-rated yield spreads. This difference is an important factor in understanding the counter-cyclical nature of sales in bankruptcy. Other factors that are significantly related to a substantially lower incidence of Section 363 sales are higher book leverage, indicating firms that are more financially distressed, and firms with more specific assets that are less easily redeployed.

It is critically important in evaluating the efficiency of the case outcomes to focus not simply on the incidence of sales, but also on whether such sales preserve the going concern value of a business. In our sample of 350 bankruptcy cases, 237 firms confirm a traditional reorganization plan and emerge from bankruptcy, though they may sell some small portion of their assets prior to emergence. Notably, 75 firms (21.4% of the sample) sell substantially all their assets as going concern businesses, approximately 40% of which are sales to financial buyers (such as private equity firms). This high proportion reflects the

increasing use of Section 363 to sell the entire firm.[7] The remaining 38 sample firms liquidate assets with no ongoing business or convert their case to Chapter 7.

The results for the determinants of overall M&A activity overall largely remain when we distinguish going concerns from other sales of assets, but with one key exception – the relationship between the use of secured debt and sales only holds for sales of a going concern, and not for other asset liquidations. This result continues to hold when we instrument for the pre-petition use of secured debt, and has important efficiency implications; our findings do not support claims that going concern value is destroyed in inefficient liquidations due to senior lender control. Rather, to the extent senior lenders are biased toward asset sales, and to the extent such sales in fact occur at fire sale prices, one could question the fairness of the process for more junior creditors.[8]

We therefore consider a further series of tests that provide evidence related to the efficiency of the process and fairness of distributions. First, we examine whether sales occur more quickly when expected costs of financial distress are high, but do not find support based on available empirical proxies for distress costs. Second, we consider the post-bankruptcy survival of businesses that are either reorganized or sold as a going concern to a financial buyer. To do so, we use news and other sources to verify whether, after emerging from Chapter 11, the business continues to operate or has subsequently been merged with yet another buyer (our analysis therefore does not depend on the firm continuing to file financial statements with the SEC post-bankruptcy). Although the sample size post-bankruptcy becomes much smaller, we find no significant differences in the survival rates between firms post-reorganization versus post-acquisition. Third, we examine the overall creditor recovery rates, as well as recoveries to secured and unsecured creditors. Our key finding is that the overall recoveries to creditors are not significantly lower in the cases where the assets are sold as a going concern.

[7] The sale is typically followed by a "liquidating plan"; thus, these cases are often treated along with other piecemeal liquidations even when the going concern business continues intact.

[8] We do not focus on the prices at which sales occur, and in particular whether such prices represent fire sales, but rather on the asset sale process and whether observed outcomes are consistent with an efficient redeployment of assets. For evidence on the existence of fire sales, see Pulvino (1998) and others as summarized in Shleifer and Vishny (2011).

Our interpretation of these results is consistent with two recent papers that study asset sales in bankruptcy, though with different focuses than ours. Lemmon, Ma, and Tashjian (2009) focus on how economic versus financial distress explains asset restructuring in bankruptcy, and argue that neither liquidation nor acquisitions appear to be inefficient outcomes. Meier and Servaes (2014) show that shareholders of the acquirers of distressed firms earn higher returns than in acquisitions of non-distressed firms, consistent with a redistribution from the target firm when assets are sold at fire-sale prices.[9]

When a firm is in danger of failing, it faces two options: M&A and bankruptcy. While these mechanisms for redeploying assets have been extensively studied in separate academic literature, our paper recognizes that M&A has become a significant part of the Chapter 11 process. While creditor control is one explanation for this development, it is not the only significant explanation, and empirically it is not linked to inefficient outcomes; rather, a shift in the balance of power in Chapter 11 appears more an issue of the allocation of value. Our analysis of recovery rates, however, does not show that junior creditors are less well off when the firm is sold in bankruptcy.

The remainder of this paper proceeds as follows. Section 2 provides background on the process for selling assets in Chapter 11 under Section 363 of the Bankruptcy Code. Sections 3 describes our data and sample. Section 5 provides our analysis of the determinants of Section 363 sales overall and of sales of all assets as a going concern. Sections 6 and 7 provide our analysis of the time to case resolution (sale or reorganization), post-bankruptcy survival rates, and creditor recovery rates. Section 8 concludes.

2. Background and Mechanics of Section 363 Sales

When firms are operating in Chapter 11, sales of assets that are outside of the ordinary course of business are governed by Section 363 of the U.S. Bankruptcy Code. Section 363 establishes a formal process through which bankrupt firms can sell their assets on an expedited basis. Selling assets in Section 363 has a number of potential benefits for both sellers and buyers, and can even be used to sell the entire

[9] See also Hotchkiss and Mooradian (1998).

firm. The assets are generally sold "free and clear" of most liabilities, leaving behind claims not specifically assumed in the transaction (such as unfunded pension liabilities).[10] Section 363 sales are not subject to a formal vote by creditors and require only the approval of the bankruptcy judge. Because the final sale is executed by a bankruptcy court order, the validity of the transaction is generally immune to later legal challenges. The prominent role that Section 363 sales played during the 2008-2009 financial crisis – in such large cases as General Motors, Chrysler, Lehman Brothers, and Delphi – certainly appears to support the claim that auctions have played an increasingly important role in restructuring U.S. companies.

Section 363 sales can range from the sale of a piece of equipment to sales of substantially all of the operating assets of the company. Typically, the debtor enters an asset purchase agreement with a proposed purchaser known as a stalking horse bidder. The court then must approve procedures for other potential purchasers to submit bids; if other bidders appear, an auction is held. Following the auction, the court holds a hearing to approve the sale to the winning bidder. The court must find that the sale has a legitimate business purpose, is proposed in "good faith," and is justified by the firm's current financial circumstances – i.e., absent the sale, the value of the firm and therefore creditor recoveries would be lower.

Although in principle Section 363 auctions can produce greater value for creditors, in practice the proceeds from sales in bankruptcy may be limited by a number of factors. Bankruptcy judges are permitted to consider non-price factors in choosing the winner of an auction. For example, In Polaroid's 2009 Section 363 auction, the judge awarded the sale to the second-highest bidder which had a better track record of buying and managing bankrupt company brands (Gilson (2010), p. 40). Break-up fees awarded to stalking horse bidders may be set too high, discouraging competing bids.[11] Bidders who follow the stalking horse in general have less time to evaluate the assets. They may also receive less information if the seller favors the stalking horse, and may undervalue the assets due to a lack of information or liquidity. Finally, senior

[10] Arguably, such use of these provisions of the Bankruptcy Code were not anticipated when they were created under the Bankruptcy Reform Act of 1978. The benefits and risks of Section 363 asset sales are discussed in Chapter 1 of Gilson (2010).

[11] The deal protection devices are similar to those used in non-bankruptcy M&A transactions (see Hotchkiss et al, 2014). The two most common devices are break-up fees and topping fees paid to the stalking horse if its bid fails.

secured creditors may exert pressure to sell assets for too low a price – maximizing their recoveries, but leaving less value for junior creditors than would be available in a reorganization.

While the purchase price paid in the auction is typically cash, some investors follow what has come to be known as a "loan to own" strategy. These investors first provide senior secured loans prior to or during the bankruptcy (as debtor in possession (DIP) financing), followed by an offer to buy the assets that secure the debt. DIP credit agreements sometimes contain provisions requiring the lender's approval of bidding procedures or of the Section 363 sale itself (we provide description of such "milestones" in DIP agreements in Table 3). The purchase is paid in whole or part by forgiving the debt, a practice known as "credit bidding." Information about the firm that the investor obtains in its role as lender may give it an advantage over other bidders.

3. Data and Sample Description

We study a sample of large Chapter 11 bankruptcy cases filed by U.S. public firms from 2002 through 2011. To form our sample, we first identify 561 Chapter 11 filings by U.S. industrial firms contained in either LoPucki's Bankruptcy Research Database or Moody's Default database.[12] From this initial list, we exclude firms without Compustat data available within the two years prior to filing. In addition, we exclude 13 cases dismissed by the bankruptcy court, still pending, or where the firm has less than $10 million in debt outstanding at the time of filing. After applying these criteria, our final sample consists of 350 Chapter 11 bankruptcy cases.

For each bankruptcy, we determine whether the debtor sold any assets pursuant to Section 363 of the U.S. Bankruptcy Code, based on deal information collected from Capital IQ, Deal Pipeline, press articles, and PACER (the electronic database of court filings with the U.S. federal appellate, district and

[12] Detailed information on sales in bankruptcy is often not available electronically prior to 2002. The LoPucki data covers all bankruptcy filings from U.S. firms with assets of at least $100 million (in 1980 dollars). The Moody's data covers bankruptcy filings and other defaults from a broad sample of public and private firms. Our sample consists of 204 filings covered in both the LoPucki data and the Moody's data, 80 filings covered in the LoPucki data only, and 66 filings covered in the Moody's data only.

bankruptcy courts). Specific terms and characteristics of each 363 sale collected from these sources include the value of consideration offered for the assets (primarily cash, assumed liabilities, or credit bids), a description of the assets sold, and characteristics of the bidding process. These data allow us to identify the frequency of Section 363 sales in Chapter 11, measure their economic significance, and assess the competitiveness of the bidding process.

To measure the involvement of senior creditors in the bankruptcy process, including 363 sales, we compile detailed information on the debt structure and senior credit facilities in place at filing. We supplement basic capital structure information from Compustat using data from Moody's Ultimate Recovery Database (URD), Capital IQ, Thompson Reuters LPC DealScan, and hand-collected information from footnotes to 10-K or 10-Q filings. These data allow us to measure the proportion of debt outstanding by the type of debt instrument (e.g., term loans, drawn bank revolvers, and bonds), the priority of debt in the capital structure (senior secured, senior unsecured, and subordinated), and the firms' pre-petition lending relationships. Terms of the DIP financing are determined using bankruptcy court documents including the DIP credit agreement, as well as a proprietary study of DIP financing by the law firm Wilmer Hale. Collectively, our data on debt structure and senior credit facilities provide a rich set of information to study the influence of secured creditors on the bankruptcy process and 363 sales.

Finally, we collect data on creditors' financial recoveries at the end of the bankruptcy case. We utilize recovery information from Moody's Ultimate Recovery Database (URD), which provides family- and instrument-level recovery rates for debt outstanding at the time of filing date for about two-thirds of the bankruptcies in our sample. The recovery data allow us to measure overall recoveries to creditors as well as recoveries to secured and unsecured creditors.

4. Descriptive Statistics.

Table 1 provides firm-level descriptive statistics for our sample of 350 Chapter 11 filings between 2002 and 2011. Panel A categorizes these cases based on the economic outcome – i.e., whether and how going concern value is preserved. In the large majority of these cases (237 + 75, or 89% of the sample), the

business is preserved as a going concern. In the remaining 38 cases, the firm is eventually liquidated, often because attempts to reorganize fail and assets are sold off piecemeal.[13] Table 1 also shows that the sample bankruptcy filings are relatively more frequent during 2002-2003 (144, 41% of the sample) and 2008-2009 (93, 27% of the sample), coinciding with the general economic downturns in those sub-periods. In contrast to non-distressed M&A waves, these sales appear somewhat counter-cyclical; this can be seen more clearly in Figure 1, which shows that the proportion of yearly filings with sales is highest at the 2003 and 2008 peaks.

When a going concern business is preserved, the firm either restructures through a conventional stand-alone plan of reorganization (237 cases) or sells off at least 95% of its assets in one or more Section 363 sales (75 cases). We hereafter refer to cases in the latter group as a "*sale of all assets*."[14] While a going concern business is preserved in both subsets of cases, these two groups differ in that a reorganization plan must be approved by majority of creditors (at least one-half in number and two-thirds in face amount of voting creditors in each impaired claimholder class must vote to approve the plan); in contrast, a Section 363 sale must be approved by the bankruptcy judge, but does not require a formal creditor vote.[15]

We also observe that only four cases of a *sale of all assets* take place through a prepackaged bankruptcy. In contrast, of the 190 conventional (non-prepackaged) bankruptcy filings where the firm's business is preserved as a going concern, a large proportion (71 cases) are a *sale of all assets* using Section 363.

[13] Studies of U.S. bankruptcies typically do not distinguish between sales of a going concern business versus other liquidations, or combine acquisitions with liquidation outcomes in comparing to reorganizations. Notably, Lemmon Ma, and Tashjian (2009) describe acquisitions as lying somewhere between firms that are reorganized or liquidated. Thorburn (2000) studies mandated bankruptcy auctions in Sweden where there is no reorganization provision, and compares firms sold as a going concern to those that are liquidated piecemeal.

[14] For clarity, we sometimes also refer to these 75 firms as a "*sale of all assets as a going concern*." The determination that the going concern is preserved in a *sale of all assets* is based on our reading of court documents and other sources that the majority of assets continue to operate after the sale. See Appendix Table A-2 for examples.

[15] A sale of all assets can arguably be used to circumvent the vote required for a Chapter 11 plan. As such, these sales have been characterized as 'sub rosa' plans (Roe and Skeel (2009)).

In a *liquidation or piecemeal sale*, no ongoing business emerges from the bankruptcy. Proceeds from asset sales are passed through to creditors under a liquidating plan or a conversion to Chapter 7. These cases represent failed attempts to reorganize and preserve the business.

For clarity, we provide examples of each outcome group in Appendix Table A-2, making several points useful to our subsequent analysis. We consider first cases where the going concern value is preserved, either through a reorganization or through a sale of substantially all assets. Milacron, Inc. provides an example of a *sale of all assets*, where distressed debt investors DDJ and Avenue Capital gain control of the business via the 363 sale. In some cases, ongoing businesses are sold to more than one buyer – for example, two separate private equity firms sponsor the purchase of separate divisions of Tokheim, which then become portfolio companies. The sale of all assets of National Steel Corporation includes an agreement with unionized workers of the company which preserves employment, emphasizing the preservation of going concern in the transaction. In each case, the cash proceeds from the sale are distributed to claimants in a subsequent "liquidating plan."

In contrast, consider the *reorganization* of Tribune Company; Tribune makes use of Section 363 to sell one business division, but its remaining business is reorganized under a plan. Notably, investors purchase debt claims during the bankruptcy and convert those claims to a controlling equity stake under the plan. This illustrates that the same economic outcome – that the business is preserved and an investor gains control, can be reached either through the sale of all assets or through a traditional reorganization.

Overall, these cases make the point that asset sales are not equivalent to liquidations, and going concern value is frequently preserved via the sales. While prior research often treats the 75 cases of *sales of all assets* as equivalent to liquidations, we show that our key results below are sensitive to this classification.

Our case outcome classifications are based on the overall disposition of assets in the case; however, Section 363 sale transactions can still occur within any of these groups. Therefore, the last three rows in Panel A show the extent to which 363 sales occur within each case outcome category. For example, among the 237 reorganizations, there are 52 cases in which the firm sells a business division and 25 cases in which

the firm sells some other asset (such as a piece of equipment), yet the firm reorganizes around the remaining assets. When no going concern is preserved, the assets are predominantly sold using Section 363 sales, with only 6 firms moving straight to a liquidating plan or conversion to Chapter 7. Put differently, 166 of the 350 sample cases make no use of Section 363 to any degree, showing that over half of our sample firms make some use of these provisions of the Bankruptcy Code. The incidence of all types of Section 363 sales by year is shown in Figure 1b.

We provide further detail for the characteristics of sample firms in Panel B of Table 1. Firms classified as *sale of all assets* are typically somewhat smaller (median book value of assets of $569 million) than firms reorganized as going concerns ($783 million). In comparison to firms that reorganize, these firms also have a higher ratio of secured to total debt at filing (median of 66.2% vs. 48.7%), are less profitable in the year prior to filing (median ratio of EBITDA to assets of 6.3% vs. 8.5%), are less leveraged (median book leverage (ratio of debt-to-assets) of 40.5% vs. 57.8%), and have a higher ratio of non-cash current assets-to-total assets (median of 34.3% vs. 21.3%). The ratio of plant, property, and equipment-to-assets is slightly lower for firms that do not reorganize. This measure has been suggested as a proxy for asset specificity, meaning assets are not easily redeployed in another industry. Williamson (1988) and others suggest that the discount on a sale of assets will be greater when the assets are more specific to a particular firm or industry.[16]

Section 363 sales arguably lead to a quicker disposition of the firm's assets, avoiding lengthier and more costly bankruptcy proceedings. In approving such sales, the court considers whether the sale is needed to preserve the value of the assets, sometimes referred to as the "melting ice cube" argument. At the same time, expedited sales are a source of criticism, and have been pointed out as a sign of inefficient liquidations due to pressure from lenders. Focusing on non-prepackaged cases, Table 1-b shows that reorganization cases reach a plan confirmation on average in 1.25 years (median 1.10 years); for cases with a *sale of all*

[16] Stromberg (2000) finds that auctions of bankrupt firms in Sweden are more likely to lead to a sale rather than a liquidation when the firm has fewer specific assets; Acharya, Bharath and Srinivasan (2007) find that creditor recoveries following default are lower in distressed industries with more specific assets.

assets, the time to a 363 sale of the firm as a whole or of a major division is 0.57 years (median 0.35 years). Thus, the resolution of the case is typically much faster when all assets are sold under Section 363.

It is also informative to consider characteristics of the sale transactions themselves, in particular to demonstrate the extent of lender involvement and the competitiveness of bidding in the sales. Table 2 reports descriptive statistics for 270 individual sale transactions that occur within the 350 Chapter 11 cases, recognizing that a single firm can undertake multiple transactions. These statistics are based on all deals where such detail is publicly available from news articles, press releases, and bankruptcy court documents including the approval of bidding procedures and the court order approving a sale; we also separately report these statistics for the cases where a going concern is preserved (i.e. excluding liquidations and piecemeal sales).

For the 75 cases of *sale of all assets*, sales of substantially all of the firm's assets are accomplished through 138 sale transactions. Of these, 60.6% are sales to "strategic" buyers (i.e., operating companies that can potentially realize synergies from acquiring the assets), while 39.4% are sales to "financial" buyers (e.g., hedge funds and private equity funds). Distinguishing between these two types of buyers is important if they have differential access to financing or if one is able to realize greater gains from acquiring assets from a bankrupt firm. DIP lenders appear as frequent bidders for the assets in these cases; the DIP provider bids in 16.1% of the 138 sale transactions and is the winning bidder in 13.9% of the sales. The incidence of DIP lender bidding is much lower when the sales are part of a reorganization case (6.3% of the 96 sales within reorganization cases). Bidding by the DIP lender has been labeled a "loan-to-own" strategy, and is recognized as an alternative to gaining ownership by converting loans to equity through a reorganization plan.[17] These strategies have also been characterized as evidence of excessive lender control. Interestingly, when lenders use these mechanisms to bid for assets, they are not always the winning bidder.[18] The frequency of bidding by pre-petition lenders that do not provide DIP financing is only slightly lower.

[17] Determinants of loan to own strategies are examined in Li and Wang (2014).
[18] Notably, for the case of Delphi in our sample, the initial bidder is not the DIP lender; the DIP lender would not have been repaid in full based on the initial bid, and subsequently formed its own group to bid higher for the assets.

Two key criticisms of auction based mechanisms for resolving bankruptcy are that related-industry buyers will be distressed at the same time (Shleifer and Vishny (1992)), and that the advantages of a stalking horse bidder deter other bidders (LoPucki and Doherty (2007)). We therefore provide description of the bidding process and competition, based on a smaller number of sale transactions (shown in brackets for each variable) where the presence or absence of bidders and their characteristics can be confirmed.[19]

We do observe some cases where there is no stalking horse bidder, noting again that the percentage is based on cases where we can positively verify their presence or absence. Cases of *sale of all assets* have a somewhat higher incidence of stalking horse bidders (84.3%) compared to sales within reorganization cases (67.2%). To the extent a stalking horse bidder has a strong competitive advantage, they may deter subsequent bidding. A stalking horse bidder wins the auction 59.4% of the time. Still, we observe competing bidders in over half of the transactions (52%).[20] When the assets attract competing bids, the stalking horse bidder wins the auction just 58.8% of the time and often pays a significant premium to their initial bid. Based on the 114 transactions with information on all bidders, the final price increases over the initial bid in 56.1% of sales and increases by over 25 percent of the initial bid in 22.8% of sales.[21] The incidence of credit bidding can be verified for a much greater number of transactions. Despite the attention to this mechanism in some high profile bankruptcy cases, the overall incidence for the large bankruptcy cases we examine is somewhat low (6.7% of the 270 sales); still, for *sales of all assets*, the incidence is more significant (12.8% of the 138 sales).[22]

[19] The number of deals for which we can obtain information on bidding falls substantially in sales of smaller business divisions (based on book value of assets); there are seldom cases of multiple bidders for smaller asset sales. When there is no mention of a stalking horse bidder in court documents or other sources, it is likely that there is only a purchase agreement with an initially proposed buyer.

[20] In comparison, Boone and Mulherin (2007) report for a sample of 400 takeovers an average of 1.13 public bidders. Only 51 of the 400 have more than one public bidder.

[21] If one conservatively assumes that all 115 transactions with no mention of competing bidders indeed have no competing bidder, this implies that 29% of all sales in our sample have more than one bidder. If one assumes that the 156 transactions with no information on changes in the bid price have no increase in the bid price, this implies that 18.5% of transactions have some increase.

[22] Hotchkiss and Mooradian (2003) and Eckbo and Thorburn (2009) show that the bidding of an existing creditor in the auction can lead to overbidding for the assets, which would benefit recoveries of other claimants.

Finally, Panel B reports the deal value and the form of payment (consideration). In all but one sale where the bidder pays in stock, the consideration paid consists of cash or assumed liabilities. Most often, the payment is 100% cash – as such, proceeds from a sale of some portion of the firm's assets can substitute for external financing when the remaining assets are retained in a reorganization. Assumed liabilities are an important component of the total consideration paid in the cases of *sales of all assets*. Credit bids, where the bidder exchanges the debt claims it holds (plus in some cases additional cash), are included in assumed liabilities. If assumed liabilities are preserved via the sale while more senior claimants of the firm ultimately are not repaid in full, the result can be a deviation from the absolute priority rule that guides a reorganization plan (but not necessarily a sale).[23]

The third important component serving as a basis for the variables in our subsequent tests is the description of the firms' debt structure. We consider the firm's financing in the period leading up to filing, and any changes to the financial structure that result from the DIP financing obtained once the firm enters bankruptcy (variables and data sources are further defined in Appendix Table A-1). Closest to the date of filing, the median ratio of secured to total debt is 53%, though there is significant variation within the sample. The median change in the two years before filing is modest, increasing by 4%. Secured debt typically consists of a revolver accompanied by a similarly sized term loan; the median increase in the revolver debt ratio shows that much of the increase prior to filing is due to a draw down on a revolver.

Panel B of Table 3 shows that 67.7% of the sample firms have access to public bond markets pre-filing, defined as firms that have an issuer-level credit rating from S&P or Moody's in the second year prior to filing (Faulkender and Peterson (2006)). The incidence of public debt is significantly lower for firms with a higher (>50%) proportion of secured debt. We use this indicator in Section 5.3 when we instrument for secured debt. DIP financing is obtained by 70.9% of the overall sample, and by a somewhat greater proportion (78.8%) of firms with higher pre-petition secured debt. This level is comparable that reported

[23] This is the crux of the Chrysler sale controversy; see Blaylock, Edwards, Stanfield (2014).

by Li and Wang (2014) and significantly higher than the 31% reported by Dahiya et al (2003) for the period 1988 to 1997.

The remainder of Table 3 provides further details (using cases where sufficient data are available) for the secured debt in place before filing, and for the 248 cases where additional secured debt – DIP financing – is obtained during the bankruptcy. Specifically, we seek to provide measures that indicate potentially greater control by secured lenders. More than one quarter of the cases have non-bank lenders; these claims are often purchased by hedge funds and other distressed debt investors that are typically active in determining the outcome of the case (Ivashina, Iverson, and Smith (2014)). For a subset of cases, we can also characterize whether the secured debt is over-collateralized, based on the ex-post recovery to these claims at the conclusion of the bankruptcy. This distinction is important because the influence of senior lenders depends on their security level (Ayotte and Morrison (2009); Jenkins and Smith (2014); Feldhutter, Hotchkiss and Karakas (2014)). When the debt is oversecured, the claimant will be paid off in full in a restructuring and typically has little voice in negotiations. At the other extreme, when the debt is undersecured and/or more junior, the holder benefits more from outcomes that maximize the total value available to creditors, reducing concerns of a bias toward inefficient liquidations. Within the identifiable cases, secured debt is over-collateralized 47.3% of the time, and there is substantial variation within our sample in the extent to which these claims are over-secured. We also observe that secured debt frequently has a lien on all assets of the firm, which is typical of firms borrowing in the leveraged loan market (Osborn (2014)).

Prior research associates DIP financing with positive case outcomes (Dahiya et al (2003)). However, to the extent that DIP financing conveys further control to lenders once the firm is in bankruptcy, it might exacerbate a liquidation bias. Similar to pre-petition debt, DIP lenders are often non-banks. As available from court documents (including the DIP credit agreement), we determine that DIP loan proceeds are frequently used to refinance pre-petition loans ("pre-petition rollup"), improving the priority of the pre-petition secured lenders. The DIP financing also sometimes includes "milestones" related to the sale of assets, either that the sale must be achieved by a particular date, or that the DIP lender must approve the

procedures for the sale. Inclusion of these provisions likely reflects that a sale of assets is anticipated at the time of filing (as such we do not use the presence of milestones as a potential explanatory variable below). Lastly, the DIP financing sometimes "primes" the prepetition lenders, meaning that it takes a lien on collateral already pledged to those lenders; this figure may be artificially high, however, since a "new" lending syndicate providing the DIP financing can differ only slightly from pre-petition lenders (but is then technically a new lender).

In summary, asset sales under Section 363 often preserve going concern value, and we use our classifications based on the occurrence of these sales for our subsequent tests. The data also provides us with proxies that reflect the influence of senior lenders on these sales. We focus in particular on characteristics of the secured debt, given the rise of secured lending that began in the early 2000s and the unique characteristics of the DIP financing. In the subsequent sections, we examine the relationship between these and other firm and industry factors and the observed case outcomes.

5. Determinants of Section 363 Sales in Bankruptcy

In this section, we examine two key sets of regressions. The first set examines the determinants of Section 363 sale activity, regardless of the overall case outcome. The second considers whether going concern value is preserved in the bankruptcy case, through either a sale of substantially all assets or a reorganization.

5.1. Incidence and Magnitude of Section 363 Sales

Table 4 presents regressions for the use of Section 363 sales in bankruptcy, using explanatory variables that measure the influence of secured creditors, financing liquidity, industry structure and financial condition, and other firm and case characteristics.[24] We first model the incidence of asset sales during the case using probit regressions, where the dependent variable equals one when proceeds from asset

[24] Correlations of key variables used in our analysis are provided in Appendix Table A-3.

sales during the case exceed five percent of book assets. We next model the same specifications using tobit regressions, where the dependent variable measures the value of the proceeds from asset sales to book assets in the case. Positive (negative) coefficients indicate that the variable increases (decreases) the probability of a sale (in the logit model) or the magnitude of sales (in the tobit model). For each model, we estimate four incremental specifications.

In the first specification of Table 4, we focus on the influence of secured creditors. We find the striking result that higher secured debt ratios are associated with significantly greater use of 363 sales: a one standard deviation increase in the secured debt ratio is associated with a 7.1% greater likelihood of a sale. The tobit model confirms that this result is not only driven by economically smaller sales: a one standard deviation increase in the secured debt ratio is associated with a 6.1% increase in sale proceeds to book assets. In Section 5.3 below, we demonstrate that this relationship between secured debt and the use of sales is also robust to endogeneity concerns and other measures of control by senior lenders.[25] At this stage in the analysis, however, we simply document a strong and robust positive correlation between the level of secured debt at filing and the use of 363 sales during the bankruptcy case.

Next, we add additional explanatory variables that relate closely to those used to predict M&A activity in the literature (e.g., Shleifer and Vishny (1992) and Harford (2005)). In contrast to the M&A literature for non-distressed firms, however, our specifications have two important differences. First, in contrast to studies that examine the effect of aggregate liquidity on M&A, we argue that the relevant liquidity measure in bankruptcy is the cost of financing for potential acquirers *relative to* the bankrupt firm's cost of financing, since a bankrupt firm can fund creditor recoveries either by selling assets or by raising outside exit financing under a stand-alone plan of reorganization. If the firm's relative cost of obtaining outside financing increases, the alternative of selling assets will be more attractive. Prior literature documents that firms emerging from Chapter 11 are typically more highly levered than industry

[25] Appendix Table A-7 shows a similar result using an indicator for DIP loans that are "roll-ups" with prepetition secured debt. Results for the secured debt ratio are also robust to the inclusion of an indicator for milestones in the DIP financing (suggesting it is likely that a sale is anticipated at the time of the DIP credit agreement) and for non-bank (hedge fund) DIP lenders.

peers and have lower credit ratings (Gilson (1997)), and are therefore likely to borrow at rates closer to those of B-rated firms.[26] Second, as opposed to positive industry shocks that are likely to influence non-distressed M&A, negative industry shocks are more likely to have an important influence in our sample of distressed firms. Negative industry shocks may portend a decline in an industry's growth prospects, making it more difficult for bankrupt firms to reorganize and creating opportunities for consolidation within an industry. Therefore, relative to the non-distressed M&A literature, we focus on financing liquidity of bankrupt targets relative to potential acquirers and examine positive and negative industry shocks separately as drivers of M&A activity in bankruptcy.

In the second specification of Table 4, we add variables for the cost of financing a stand-alone reorganization relative to a potential acquirer's cost of capital (*B – BBB Spread*) and indicators for positive and negative industry shocks. We define positive (negative) shocks as when the firm's industry median sales growth or cumulative stock return for the year prior to filing are in the highest (lowest) sample quartile and neither variable is in the lowest (highest) sample quartile.[27] These regressions show that sales are 8.1% larger relative to book assets with a one standard deviation increase in *B – BBB Spread*; the likelihood of a sale also increases by 0.03, but this effect is not statistically significant with a Z-statistic of 1.3. With respect to both positive and negative industry shocks, sales are marginally less likely and smaller, but the coefficients are not statistically significant. In sum, we find evidence of a positive direct effect between sales and higher credit spreads for bankrupt targets vs. potential acquirers, but no significant relationship for industry shocks.

Harford (2005) suggests that it is important to consider the interaction effect between financing liquidity and industry shocks on M&A for non-distressed firms. Extending this intuition to firms in bankruptcy, in the third specification of Table 4, we allow for an interaction effect between our measures

[26] Kahl (2002) provides theoretical justification for why firms emerge from bankruptcy with higher leverage ratios than their peers.

[27] Appendix Table A-5 provides further description of the industry shock variable. As expected, there is a clustering of filings in industries with negative shocks in 2002, 2008, and 2009, but bankruptcy filings also occur frequently in years of positive industry shocks. Our results throughout our analysis are robust to alternative specifications of this variable, such as a principal component of a larger number of industry performance measures, as in Harford (2005).

of financing liquidity and industry shocks. We find that when financing for a target firm is relatively expensive compared to the cost of a potential acquirer's cost of capital (i.e., a higher *B - BBB Spread*), and when there are either positive or negative industry shocks, sales are significantly more likely. In the probit model, the interaction effect is highly statistical significant with Z-statistics greater than three. Although the interaction effect in the tobit model is not significant, the direction of the effect is also positive. These results show that, consistent with prior literature, both financial conditions and liquidity are important in explaining M&A activity – but in bankruptcy, the direction of these effects differs importantly.

As a benchmark for comparison, we report in Appendix Table A-4 specifications that more closely follow Harford (2005), in that we include the *C&I Spread* as the measure of financing liquidity along with industry shocks and interacted variables. Interestingly, the probability of asset sales is again increasing when the *C&I Spread* is interacted with both positive or negative shocks. This positive coefficient contrasts with the significant negative effect documented by Harford (2005), meaning that when financing costs are higher, sales are more likely regardless of the sign of the shock. This finding is related to our description that Section 363 sales are counter-cyclical, in contrast to the pro-cyclical behavior of broader merger waves. However, the key factor in our setting is not simply the cost to an acquirer of funding an acquisition, but also the bankrupt firm's alternative of financing the reorganized firm. The results in Appendix Table A-4 are largely similar to those in Table 4.

In the fourth specification of Table 4, we add explanatory variables for industry structure, including industry dependence on external finance and industry concentration. We measure industry dependence on external finance following Rajan and Zingales (1997) and measure industry concentration using a Herfindahl-Hirschman Index based on industry sales in Compustat. With respect to industry financial dependence, we find that the combination of high industry financial dependence and a higher *B - BBB Spread* leads to a significantly higher likelihood of a sale and greater size of sales in bankruptcy. In other words, the relative cost of financing a stand-alone reorganization versus an acquirer's cost of capital is an especially important determinant of M&A in bankruptcy when the industry of the target is also more dependent on external sources of capital. With respect to industry concentration, we find that bankruptcies

in highly concentrated industries experiencing negative industry shocks are less likely to have sales. In highly concentrated industries, there are fewer natural acquirers for the bankrupt firm's assets, and when combined with poor growth prospects during a negative industry shock, firms in these industries are also less likely to acquire a bankrupt target. These results show that high financial dependence and high concentration of the bankrupt firm's industry amplify the effects of financial liquidity and industry shocks on sales in bankruptcy.

Finally, all specifications in the regressions in Table 4 include proxies for the complexity of liabilities, economic vs. financial distress, and liquidity of assets. With respect to complexity of liabilities, we find evidence that the presence of a defined benefit pension is associated with 8% to 9% larger sales to book assets in bankruptcy, but the effect on the likelihood of a sale is not different from zero. This result suggests that complexity added by a pension plan is only relevant to relatively larger sales. We also test whether court busyness is related to sales using a measure based on Iverson (2014) using the number and type of cases filed in the same district and year. However, we find that court busyness has an economically small effect on sales and is not statistically different from zero. This analysis also helps to rule out that our financing liquidity and industry shock measures are simply a proxy for times when overall filing rates are high.

With respect to financial vs. economic distress, a key finding is that firms that are more financially distressed, as measured by higher *book leverage*, are significantly less likely to undertake any asset sales. This finding is consistent with Lemmon, Ma, and Tashjian (2009) who find that firms that are financially but not economically distressed largely restructure their liabilities but not their assets in Chapter 11. Although sales are less likely when firms are financially distressed, our analysis indicates that the likelihood of sales is unrelated to the severity of firms' economic distress; the coefficient on *EBITDA/Assets* (measured in the year prior to filing for bankruptcy) is insignificant in all specifications. Loadings on alternative measures of pre-bankruptcy operating profitability are also insignificant. Thus, when firms have "good assets and a bad balance sheet," the reduction in liabilities that

occurs in a reorganization can be sufficient to resolve financial distress. Another possible interpretation of this effect is that when *book leverage* is higher, creditors face larger potential write-downs of their claims, making them less willing to compromise, and exacerbating inter-creditor conflicts. In such circumstances, asset sales may be less conducive to reaching a settlement than a conventional reorganization, which allows a plan to be "crammed down" on dissenting creditors.[28]

Finally, we examine how the liquidity of the firm's assets is related to sales in bankruptcy. Cash and other liquid assets available to the firm can be used to fund a reorganization, but we find no significant effect in Table 4. To the extent PP&E reflects less liquid assets, or higher asset specificity (Acharya, Bharath, and Srinivasan (2007)), sales are significantly less likely. Interestingly, within our sample, *PP&E/Total Assets* has a very low correlation (-0.013) with the secured debt ratio (Appendix Table A-3).We also control for firm size using *log of book assets* in all regressions, which not surprisingly is associated with a higher incidence (but not magnitude) of sales.

5.2. Going Concern Sales versus Liquidations

While the statistical relationship between the secured debt ratio and the occurrence of Section 363 sales is clear in Table 4, the regressions in Table 5 provide a somewhat different economic interpretation. These regressions use a multinomial logit model that enables us to separately consider effects related to *sales of all assets*, where the business is preserved as a going concern, from cases where there is no ongoing business (which we have termed a liquidation or piecemeal sale). Specifically, the dependent variable takes one of three outcomes: 1) all of the firm's assets are sold in 363 sales, where substantially all of the assets are preserved as a going concern (from Table 1, 75 cases of *Sale of All Assets* as a going concern), 2) the firm's assets are liquidated or sold piecemeal in Section 363 sales (38 cases of *Liquidation or Piecemeal*

[28]Creditor resistance may be less of a barrier to the piecemeal sale of a single asset or smaller package of assets, because the sale can be approved by the bankruptcy judge without requiring a vote of the affected creditors. When the firm proposes to sell all or substantially all of its assets, bypassing a formal vote of creditors may be more difficult because the transaction could be challenged as a *sub rosa* reorganization plan.

Sale), or 3) the firm completes a reorganization plan (237 cases, the base outcome). In other words, the key difference is that although all types of Chapter 11 cases can involve Section 363 sales, in contrast to Table 4 which seeks to explain whether any such sales occur, the regressions in Table 5 distinguish whether a going concern is preserved in these sales.

Regardless of the specification, the clear result from Table 5 is that the secured debt ratio is positively associated with cases where all assets are sold as a going concern (versus reorganized), but the coefficient is insignificant for liquidation and piecemeal sales (versus reorganizations). For example, from the first specification, a one standard deviation increase in the secured debt ratio implies that the firm is 1.428 times more likely to sell all assets as a going concern rather than reorganize. At the same time, the regression shows no significant relationship between the secured debt ratio and the choice to liquidate versus reorganize.

Appendix Table A-6 alternatively uses probit regressions to make this point – when we categorize the 75 cases of a sale of all assets (as a going concern) along with liquidation outcomes (38 cases), the coefficient for the secured debt ratio is positive and significant. When we consider only the 38 true liquidations versus the 237 cases of reorganization, the coefficient changes sign and is no longer significant. Though the power of tests comparing liquidations/piecemeal sales to reorganization is lower than that for sales as a going concern, the economic magnitude of any effect based on the reported coefficients is also small. Thus, our interpretation is that while secured debt is associated with a higher incidence of *sales of all assets*, it is not linked to a loss of going concern value – i.e. excessive liquidation.[29]

Comparing other coefficients for the sale of all assets (vs. reorganizations) and the liquidations (vs. reorganizations), the relative financing costs (*B-BBB Spread*) are less relevant for liquidations/piecemeal sales; still, the interaction with positive industry shocks remains positive. Higher *book leverage* is associated with less sales, but even more strongly for the liquidations. Firm size (*log of book assets*) is a strong determinant of liquidations/piecemeal sales.

[29] Our evidence is also related to that of Eckbo and Thorburn (2008) who examine bankruptcy auctions in Sweden, finding that only assets sold piecemeal (implying no going concern value) are sold at a discount.

5.3. Robustness and Endogeneity of Secured Debt Ratio and Case Outcomes

An obvious endogeneity issue arises in the interpretation of the coefficient for the secured debt ratio. The primary concern is that the degree of economic distress drives both the amount of secured debt incurred prior to bankruptcy (if weaker firms are not able to borrow on an unsecured basis) and the outcome of sales. We address this concern in several ways: (1) In unreported results, we show that the amount of secured debt at filing, as well as the increase in secured debt prior to filing, are not statistically related to the firm's performance in the two years leading to filing. (2) The relationship is strong when we use multinomial logit regressions in Table 5, directly comparing cases of a sale of all assets as a going concern to reorganizations – in both outcomes, an arguably viable business is preserved. Similarly, we report further regressions (explained below) which exclude liquidations, such that we only compare cases where the assets reach the same economic outcome.[30] (3) We use an IV approach in to further demonstrate the robustness of this result.

Table 6 reports regressions using approaches (2) and (3) above. For approach (2), we also exploit the level of overcollateralization of the secured debt. Several prior papers (as noted in Section 1) exploit a non-monotonic relationship between the level of security supporting the debt and the potential influence of those creditors. When secured creditors are overcollateralized, they will almost certainly be paid in full in the bankruptcy, and so are expected to have less voice in a negotiated outcome.[31] We report simple probit regressions for the incidence of a significant Section 363 sale within the bankruptcy case as defined in Table 4 (Regressions 1 and 2), and for the incidence of *sales of all assets* as a going concern as in Table 5 (Regressions 4 and 5). For the latter regressions, we exclude liquidations/piecemeal sales from the sample. Firms with a high secured debt ratio are indicated with the variable *≥50% Secured*, meaning more than 50%

[30] Note that this approach is useful to the extent endogeneity concerns extend to other explanatory variables beyond the secured debt levels.

[31] These are also cases where it is possible to "prime" the pre-petition secured lender, meaning that a DIP lender can gain a lien on assets already pledged to those lenders because they are "adequately protected" by the collateral pledged to them.

of their pre-petition debt outstanding is secured. Notably, the coefficient for the interaction of *≥50% secured* and *overcollateralized* is negative and significant, and Section 363 sales of any kind, including sales of all assets, are less likely. This non-monotonic relationship would not be predicted if greater economic distress led to both a higher level of secured debt and more asset sales.

Table 6 also shows the result of the IV approach, using two instruments for the secured debt ratio that are suggested by prior research. The first instrument measures the ratio of aggregate debt issued by leveraged U.S. firms in (secured) loans relative to (unsecured) bonds in the three-years before filing. Notably, increased use of securitization in the years leading up to the financial crisis fueled a dramatic rise in secured loans to leveraged firms, growing to three times the size of the high yield bond market in 2007 (Osborn (2014)). This measure serves as a proxy for the relative supply of secured versus unsecured debt financing before filing. The second instrument, motivated by Faulkender and Petersen (2006), measures whether the pre-bankruptcy firm has public bond market access; as in their study, we use an indicator based on whether the firm has an issuer-level credit rating from S&P or Moody's in the second year prior to filing. Regression 3a shows that both significantly explain the incidence of asset sales with the expected signs; Regression 6a shows that the first variable has a similar coefficient in explaining the case outcomes. The second stage regressions (3b, 6b) show the instrumented variable remains strongly significant.

Overall, the relationship between the level of secured debt and sales of going concern businesses appears quite robust, and it seems unlikely that economic distress can explain both. The richness of our dataset permits us to consider other measures of potential control of senior lenders, which we report in Appendix Table A-7. We replicate our basic regression specifications from Tables IV and V including additional proxies for senior creditor control, and find that that the coefficient for the variable indicating firms with higher levels of secured debt remains positive and significant. Specifically, as we describe in Section II, the roll-up of the DIP financing into pre-petition debt has been suggested to reflect creditors' influence, and a dummy variable indicating these cases is significantly positively related to the incidence of sales. Interestingly, a variable indicating non-bank lenders, typically hedge funds, have provided DIP

financing is negatively related to the sale outcomes. In sum, our results are consistent with the influence of senior creditors on asset sales, but do not support concerns of inefficient liquidations of assets.

6. Expedited Asset Sales: The Melting Ice Cube Hypothesis.

The sale of a business will preserve more value relative to a reorganization if it can be completed in less time, thereby reducing financial distress costs. The economic benefit of selling assets should be especially large for firms that have high distress costs and complex liabilities that cannot be restructured quickly. Practitioners cite greater the speed of redeployment of the assets as one of the advantages of the Section 363 sale process. Critics have objected, however, that a sale does not provide the opportunity for creditors to verify the value of a reorganization alternative, i.e. to perform a valuation of a potentially reorganized firm.[32] Still, Section 363 requires the court to approve bidding procedures for a sale, and creditors can object to the sale. Empirically, our key interest is whether proxies for greater senior creditor control, higher expected costs of financial distress, and complexity of liabilities are associated with a faster time to asset sales.

Table 7 reports Cox proportional hazard models that relate the time to a 363 sale to various firm and industry characteristics. The dependent variable (*Days to First Sale*) is the number of days that elapse from the bankruptcy filing date to when the firm sells a business division or all assets through a 363 sale; in cases where a sale event does not occur before confirmation of a plan (i.e., censored observations in the model), the dependent variable is equal to the number of days from filing until confirmation of a plan. We include controls for prepackaged bankruptcies in Regressions 1 through 3, and exclude prepacks from the sample in Regressions 4 through 6.

The secured debt ratio has a strongly positive and significant coefficient in Regressions 1 through 3. For example, from Regression 3, when the secured debt ratio increases by one standard deviation, the

[32] See Terrence Corrigan, "Do Quick-and-Easy Section 363 Sales Always Yield the Best Return on Collateral?" ABF Journal, January/February 2010, accessed online at http://www.abfjournal.com/articles/do-quick-and-easy-section-363-sales-always-yield-the-best-return-on-collateral/. Roe and Skeel (2010) discuss the negative aspects of quick sales.

rate of asset sales increases by 23.9%. These results indicate that asset sales take place sooner after firms file for bankruptcy when senior secured lenders have more control. When we exclude prepaks (rather than controlling for them), the coefficient for the secured debt ratio is similar in magnitude but not significant once market borrowing costs are considered (models 5 and 6). Other measures of senior creditor influence (not reported), such as whether the debtor receives DIP financing and whether the DIP financing is a rollup with pre-petition debt, are positive but of much smaller magnitude and significance. Overall, the evidence weakly supports the idea that greater senior secured creditor control leads to expedited sales.

Interpreting the industry market to book ratio as a proxy for financial distress costs, the regressions do not support the prediction that asset sales occur sooner after filing when these costs are higher; the coefficients on *Industry Market to Book* are positive but insignificant in all six regressions. We also use the bankruptcy filing announcement return as an alternative proxy for expected bankruptcy costs, which should be correlated with the measure used by Davydenko, Strebulaev, and Zhao (2012); we find similarly insignificant results using this measure.

One reason the proxies for distress costs may not have an effect is that the decision to sell assets may be dominated by whether the firm has assets which are relatively liquid and easier to value, and hence more easily converted into cash. Tangible assets that appear on the firm's balance sheet are arguably more liquid and easier to evaluate than intangible assets such as future growth opportunities or goodwill. Consistent with this explanation, firms with greater *PP&E/Assets* sell assets more quickly (hazard ratio significant and less than 1.0).[33] Further, the significant positive coefficients for *Cash Holdings/Assets* and *Non-cash Current Assets/Assets* suggest that firms with more cash and equivalent assets less often engage in quick sales.

[33] The regressions do not support the alternative that if higher PP&E/Assets proxies for firm or industry specificity (such that the assets are harder to redeploy), discounts on sales would be greater and so sales would be more difficult. We further consider this effect in regressions explaining recovery rates in Section 7.

7. Recovery Rates and Post-bankruptcy Survival.

Creditor recoveries provide an indication of how much value has been lost, relative to the time the firm borrowed from lenders or bondholders. Table 8 reports regressions following the specifications of Acharya et al (2007) and others, who argue that industry conditions are an important determinant of recoveries. We also include our proxies for senior debtholders' control, and indicators for whether the case was resolved using Section 363 sales. We use the ultimate recoveries, based on the value of distributions at the end of the Chapter 11 case, as available from Moody's Ultimate Recovery Database.

Of key interest, the coefficient for the secured debt ratio is positive and significant for the overall recovery; the sign is opposite to that which would be expected if greater control by secured debtholders leads to more destruction of value. An alternative explanation is that senior lenders force the firm to file sooner, and therefore value has not declined as far at the time of filing (Jensen). The result is not sensitive to the exclusion of liquidations from the sample, and is also robust to other measures of senior creditors' control.

To the extent that a greater proportion of the pre-petition debt is secured, the secured debt also bears the losses of more junior creditors and the recovery will mechanically be lower – thus the coefficient for secured debt in regressions (4) through (6) is negative and significant as expected. More relevant is the coefficient for the regressions explaining the unsecured recovery (7 through 9); here, there is no significant relationship between the secured debt ratio and the unsecured recovery. The junior debt is frequently held by specialized distressed debt investors such as hedge funds (Hotchkiss & Mooradian (1997) and Jiang, Li, and Wang (2012). Overall, the analysis of recovery rates does not suggest that recoveries either as a whole or to unsecured creditors are lower in cases where senior debtholders potentially have greater control.

Table 8 also shows that recoveries to secured creditors are lower when the firm's industry is more concentrated and more dependent on external financing. Negative industry shocks appear relatively important in explaining unsecured recoveries. We do not find the effect of asset specificity (*PP&E/Assets*) documented by Acharya, Bharath, and Srinivasan (2007) for our sample. We view the additional variables in these regressions largely as controls suggested by prior literature, and overall the results demonstrate the

robustness of the relationship between the secured debt ratio and recovery rates. Thus, while our evidence in the prior section does not support the hypothesis that senior lender control leads to inefficient liquidations (in the sense of destruction of going concern value), the analysis of recovery rates does not suggest that fire-sale prices in Section 363 sales lead to lower overall creditor recoveries.

In Table 9 we provide further evidence suggestive of the efficiency implications of Section 363 sales by examining post-reorganization and post-sale of assets survival rates. A firm, or an operating division of a firm, is deemed to 'survive' if it remains an independent legal/operating entity without subsequently being acquired or filing for bankruptcy. We first report the post-bankruptcy outcomes for 228 firms that are reorganized and emerge from Chapter 11 as independent operating companies. Prior studies of post-bankruptcy performance typically include only firms that are reorganized and continue to file financial statements with the SEC (Hotchkiss, 1995). Many reorganized companies remain privately held, sometimes by distressed debt funds, and firms sold to financial buyers typically remain private. Therefore, we use news searches and firm web sites to determine whether the firm still operates independently, is subsequently acquired, or ceases operations as of one, two, and three years after emergence. Two years after emergence from bankruptcy as an independent company under a plan of reorganization, 84.2% of firms are still independent entities, while 9.5% have been acquired and 6.3% have refiled for bankruptcy; three years after reorganization, the corresponding percentages are 74.7%, 14.1%, and 11.3%.

We also determine the survival rates for 75 cases where the bankrupt firm either sells a business division to a financial buyer, or sells all of its assets as a whole going concern to a financial buyer. Of these 75 sales, 52 are a sale of an operating division and 23 (shown separately in Table 9) are sales of all assets to a single financial buyer. Survival rates for all 75 sales of a going concern are slightly higher than for firms that are reorganized, e.g., 89.3% and 80.0%, two and three years after the sale, respectively. Survival rates are very close to those of the reorganized firms for the subsample of 23 firms sold as a whole to financial buyers (82.6% and 73.9%). None of these differences are statistically significant, based on a test for differences in odds ratios between each asset sale subsample and the base sample of reorganized firms. Although tests of differences between reorganizations and sales to financial buyers are based on a relatively

small sample size, the overall results suggest that asset sales do not lead to less economically efficient outcomes than traditional reorganizations.

8. Conclusions

We provide a new perspective on the increased use of M&A for resolving financial distress in bankruptcy. Contrary to concerns that the Chapter 11 process has shifted toward excessive liquidation of viable firms, we highlight that M&A in bankruptcy often achieves a similar economic outcome when compared to a traditional reorganization. Most bankruptcy cases involving M&A transfer the firm's assets as a going concern to new owners while leaving (mostly cash) consideration from the sale for creditors to recover under a liquidating plan. In this sense, the rise of M&A in bankruptcy has blurred traditional distinctions between "reorganization" and "liquidation".

Within a large sample of Chapter 11 cases, we investigate the economic drivers of M&A in bankruptcy. In contrast with M&A for non-distressed firms, M&A in bankruptcy is counter-cyclical and is more likely in periods when the cost of financing a potential stand-alone reorganization is expensive relative to the cost of selling the firm's assets to an acquirer with internally generated funds or a lower cost of capital. Moreover, when firms face a high cost of financing a reorganization versus a sale, we find that the likelihood of a sale is pronounced for firms in financially dependent industries and during positive or negative industry shocks. We also find a robust positive relationship between secured creditor control in the case and the use of M&A in bankruptcy. However, we argue that this result does not reflect a "liquidation bias" of secured creditors: we find a positive relationship only for cases that preserve going concern value of the firm. Finally, we show that overall creditor recovery rates are higher, and unsecured creditor recoveries and post-bankruptcy survival rates are not different, when bankrupt firms sell businesses as going concerns.

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Figure 1
Chapter 11 Bankruptcy Outcomes and Asset Sales

This figure illustrates trends in bankruptcy outcomes and assets sales prior to confirmation of a plan by year of filing for our sample of 350 Chapter 11 cases. In Panel A, the number of filings in each year are broken out into three broad outcomes: 1) filings that result in a reorganization of the firm's assets under a plan (prepackaged plans and non-prepackaged plans are broken out separately in the figure), 2) filings that result in a sale of all assets of the firm, where a majority of assets are sold as a going concern, and 3) filings where the firm otherwise liquidates or is sold piecemeal through 363 sales, where a majority of assets are not sold as a going concern. On the right axis, we plot the percentage of filings in each year that result in a sale of all assets of the firm, where a majority of assets are sold as a going concern. In Panel B, we categorize the extent of asset sales in 363 sales prior to confirmation of a plan into four categories: 1) "No Sales" are cases with no 363 sales, 2) "Sale of Business Division" are cases that involve a 363 sale of a whole business division or core block of assets, and 3) "Sales of Other Assets" are cases that involve a 363 sale of tangible or intangible assets but do not include a sale of a business division or core asset. On the right axis, we plot the percentage of filings in each year where the total proceeds from all 363 sales exceed 5 percent of the firm's pre-petition book assets.

Panel A: Bankruptcy Case Outcomes

Panel B: Asset Sales Prior to Confirmation of a Plan

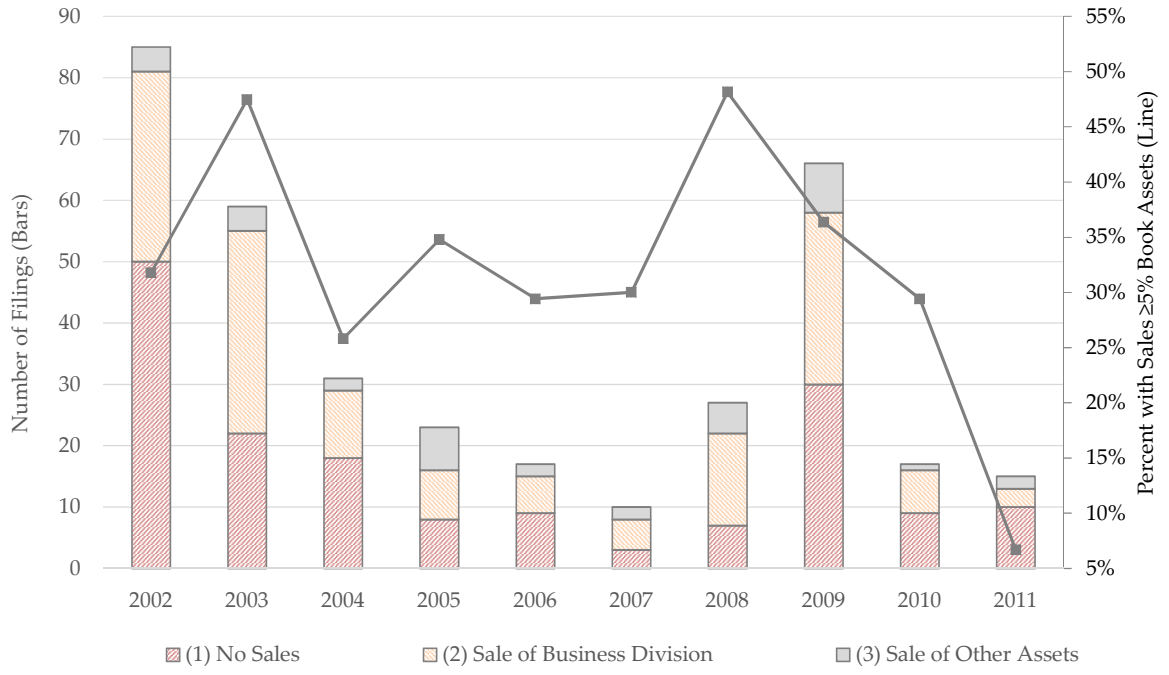

Table 1
Bankruptcy-Level Descriptive Statistics

This table provides summary statistics for the sample of 350 Chapter 11 bankruptcy cases and pre-petition firm characteristics. All variables are defined in Appendix Table A-1. Across the columns, we categorize outcomes of the cases as "Going Concern Preserved" or "Liquidation or Piecemeal Sale." "Going Concern Preserved" means that the firm (1) reorganizes under a plan or (2) sells all assets through 363 sales, where substsantially all assets are sold as a going concern. "Liquidation or Piecemeal Sale" (3) means the firm is otherwise liquidated or sold piecemeal through 363 sales, where a majority of assets are not sold as a going concern. In Panel A, we further report the incidence and types of Section 363 sales within each case outcome category: 1) "No Sales" are cases with no 363 sales, 2) "Sale of Business Division" are cases that involve a 363 sale of a whole business division or core block of assets, and 3) "Sale of Other Assets" are cases that involve a 363 sale of tangible or intangible assets but do not include a sale of a business division or core asset. In Panel B, we present means and medians for pre-petition firm characteristics, the time to bankruptcy resolution, and the time to asset sales. The "time to confirmation" is the number of years from filing to a reorganization plan confirmation, a liquidating plan following a sale of assets, or conversion to a Chapter 7 case. The "time to 363 sale" is measured as the number of years from filing to the closing date of the first 363 sale of a business division or core asset, based on 184 cases that involve a sale. [File] corresponds to the period as close as possible to filing, either at filing (using data from Moody's) or from the 10-Q within one year prior to filing; [t-1] corresponds to the period between one and two years prior to filing.

Panel A: Bankruptcy Case Outcomes

			Going Concern Preserved				(3)	
		All Filings	(1) Reorganization		(2) Sale of All Assets		Liquidation Piecemeal Sale	
		Count	Count	Percent	Count	Percent	Count	Percent
All Filings		**350**	**237**	**67.7%**	**75**	**21.4%**	**38**	**10.9%**
Year of Filing	*2002-2003*	144	97	67.4%	28	19.4%	19	13.2%
	2004-2005	54	40	74.1%	10	18.5%	4	7.4%
	2006-2007	27	20	74.1%	5	18.5%	2	7.4%
	2008-2009	93	55	59.1%	28	30.1%	10	10.8%
	2010-2011	32	25	78.1%	4	12.5%	3	9.4%
Filing Type	*Non-Prepackaged*	226	119	52.7%	71	31.4%	36	15.9%
	Prepackaged	124	118	95.2%	4	3.2%	2	1.6%
363 Sales	*No Sales*	166	160	96.4%	0	0.0%	6	3.6%
	Sale of Business Division	147	52	35.4%	75	51.0%	20	13.6%
	Sale of Other Assets	37	25	67.6%	0	0.0%	12	32.4%

Table 1 (Continued)

Bankruptcy-Level Descriptive Statistics

Panel B: Firm Characteristics and Time to Resolution of Chapter 11 Cases

		All Filings		Going Concern Preserved				(3) Liquidation or Piecemeal Sale	
				(1) Reorganization		(2) Sale of All Assets			
		Mean	Median	Mean	Median	Mean	Median	Mean	Median
Firm Characteristics	*Book Assets [t-1]*	$2,852	$719	$2,817	$783	$4,002	$569	$804	$422
	Secured Debt Ratio [File]	0.553	0.530	0.516	0.487	0.649	0.662	0.599	0.637
	EBITDA / Assets [t-1]	0.070	0.083	0.084	0.085	0.052	0.063	0.022	0.042
	EBITDA Volatility [t-1]	0.026	0.014	0.024	0.013	0.026	0.014	0.038	0.017
	Book Leverage [t-1]	0.593	0.541	0.657	0.578	0.446	0.405	0.485	0.452
	PP&E / Assets [t-1]	0.356	0.335	0.370	0.353	0.315	0.271	0.352	0.317
	Non-cash Current Assets / Assets [t-1]	0.271	0.235	0.243	0.213	0.331	0.343	0.331	0.337
	Cash Holdings / Assets [t-1]	0.077	0.030	0.071	0.030	0.084	0.023	0.102	0.044
	Sales Growth [t-1]	0.190	0.002	0.187	0.002	0.151	-0.014	0.282	0.012
Time to Confirmation (years)	*All Filings*	1.02	0.77	0.83	0.58	0.58	1.45	1.37	1.04
	Non-Prepackaged	1.35	1.08	1.25	1.10	1.10	1.48	1.43	1.10
	Prepackaged	0.42	0.37	0.41	0.37	0.37	0.86	0.20	0.20
Time to 363 Sale (years)	*All Filings [184 cases with sales]*	0.60	0.38	0.65	0.54	0.55	0.34	0.63	0.45
	Non-Prepackaged	0.63	0.40	0.76	0.79	0.57	0.35	0.63	0.45
	Prepackaged	0.36	0.21	0.38	0.19	0.29	0.23	-	-

Table 2

Sale-Level Descriptive Statistics

This table provides a transaction-level summary for 270 sale transactions from our full sample of 350 bankruptcy filings as well as subsamples of cases where a going concern is preserved. Panel A presents incidence of sale characteristics including the type of buyer, the identity of bidders and measures of bidding competition. We report the number and percent of sale transactions where the characteristic applies ("Count Yes" and "Percent Yes") and, where applicable, the number and percent where the characteristic applies to the winning bidder ("Count Winner" and "Percent Winner"). Where data are not available for the whole sample, numbers in brackets next to the variable names indicate the number of sales where we can verify information. Panel B presents statistics for the consideration paid in the sale.

		All Filings (350 bankruptcy cases) 270 Sales				Cases with Going Concern Preserved: Reorganization (237 cases) 96 Sales		Cases with Going Concern Preserved: Sale of All Assets (75 cases) 138 Sales	
		Panel A: Incidence of 363 Sale Characteristics							
		Count Yes	Percent Yes	Count Winner	Percent Winner	Percent Yes	Percent Winner	Percent Yes	Percent Winner
Type of Buyer	*Strategic Buyer*	180	66.9%	-	-	78.1%	-	60.6%	-
	Financial Buyer	89	33.1%	-	-	21.9%	-	39.4%	-
Types of Bidders	*DIP Lender Bid*	31	11.5%	27	10.0%	6.3%	6.3%	16.1%	13.9%
	Prepetition (Non-DIP) Lender Bid	24	8.9%	18	6.7%	2.1%	2.1%	13.9%	9.5%
	Management Bid	21	7.8%	21	7.8%	10.4%	10.4%	6.6%	6.6%
Bidding Competition	*Stalking Horse Bid [165 Sales]*	127	77.0%	98	59.4%	67.2%	48.3%	84.3%	69.7%
	Competing Bidders [154 Sales]	80	52.0%	-	-	41.5%	-	55.3%	-
	Stalking Horse & Competing Bids [147 Sales]	68	46.3%	40	27.2%	35.3%	13.7%	50.6%	34.6%
	Bid Increase [114 Sales]: Zero	50	43.9%	-	-	50.0%	-	44.4%	-
	>0 to 10%	13	11.4%	-	-	3.3%	-	13.9%	-
	>10 to 25%	25	21.9%	-	-	23.3%	-	20.8%	-
	>25%	26	22.8%	-	-	23.3%	-	20.8%	-
	Credit Bid [254 Sales]	17	6.7%	15	5.9%	0.0%	0.0%	12.8%	11.3%
		Panel B: Consideration Paid in 363 Sales							
		Mean	Median			Mean	Median	Mean	Median
Deal Size	*Total Consideration Value [Mil.]*	$664	$50			$144	$40	$1,128	$66
	Total Consideration to Book Assets	0.172	0.051			0.067	0.009	0.257	0.136
Consideration	*Cash / Total Consideration*	82.8%	100.0%			91.9%	100.0%	76.4%	100.0%
	% Assumed Liabilities / Total Consideration (includes Credit Bid)	14.6%	0.0%			5.1%	0.0%	21.2%	0.0%

Table 3

Pre-Petition Debt and Debtor-in-Possession Financing

This table describes the prepetition debt structure and debtor-in-possession (DIP) financing for the sample of 350 Chapter 11 filings. All variables are defined in Appendix Table A-1. Panel A shows the level and changes in secured debt and its two main components (drawn revolvers and term loan debt) leading up to filing. Panel B presents a summary of pre-petition debt and DIP financing characteristics. The table reports the number and percent of total cases where the characteristic applies ("Count Yes" and "Percent Yes"), based on the full sample of 350 filings, unless indicated (in brackets) for variables where data are available for a smaller number of cases. DIP financing characteristics are based on the 248 firms which have such financing. The table further breaks out cases with high (≥ 50%) and low (< 50%) pre-petition secured debt ratios (counts are omitted to preserve space). We also report odds ratios indicating the relative likelihood of the characteristic for a firms with high versus low secured debt ratios. We present significance levels of a test against an odds ratio of one (indicating the characteristic is equally likely in both groups). ***, **, and * denote statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively. [File] corresponds to the period as close as possible to filing, either at filing (using data from Moody's) or from the 10-Q within one year prior to filing; [t-1] corresponds to the period between one and two years prior to filing; [t-2] corresponds to the period between two and three years prior to filing.

Panel A: Pre-Petition Debt Structure

		Pre-Petition Debt Ratios			Pre-Petition Change	
		[t-2]	[t-1]	[File]	Δ [t-2, File]	Test for Zero Null
Secured Debt Ratio	*Mean*	0.45	0.47	0.55	0.11	***
	Median	0.41	0.46	0.53	0.04	***
Revolver Debt Ratio	*Mean*	0.15	0.17	0.21	0.06	***
	Median	0.04	0.06	0.13	0.03	***
Term Loan Debt Ratio	*Mean*	0.18	0.20	0.22	0.04	***
	Median	0.00	0.04	0.11	0.00	

Panel B: Debt Characteristics

	All Filings		Pre-Petition Debt Structure		Relative Incidence	
			≥ 50% Secured	< 50% Secured		
	Count Yes	Percent Yes	Percent Yes	Percent Yes	Odds Ratio	Test for Equal Odds
Has Public Bond Access (Pre-Petition)	237	67.7%	60.9%	75.8%	0.51	***
Has DIP Financing (in Bankruptcy)	248	70.9%	78.8%	62.4%	2.27	***
Pre-Petition Secured Debt Characteristics:						
≥ 50% Non-Bank Lenders [312 Cases]	86	27.6%	27.2%	28.0%	0.96	
Over-Collateralized [260 Cases]	123	47.3%	21.4%	73.6%	0.10	***
Collateralized by: [311 Cases]						
All Assets	203	65.3%	64.6%	66.4%	0.94	
Current	40	12.9%	16.8%	8.7%	2.12	**
PP&E	32	10.3%	13.0%	7.4%	1.90	
Other	14	4.5%	5.0%	4.0%	1.25	
DIP Financing Characteristics (for 248 Cases):						
≥ 50% Non-Bank Lenders	115	46.4%	47.6%	44.7%	1.13	
Pre-petition Rollup [233 Cases]	162	69.5%	75.7%	60.8%	2.01	**
Milestone for Plan [206 Cases]	38	18.5%	23.3%	12.2%	2.18	**
Milestone for 363 Sale [208 Cases]	37	17.8%	23.7%	10.0%	2.80	**
363 Sale Process Control [207 Cases]	32	15.5%	16.2%	14.4%	1.15	
Priming Lien [214 Cases]	74	34.6%	36.1%	32.6%	1.17	

Table 4
Determinants of Section 363 Sales

This table reports regressions for the occurrence of a Section 363 sale during the bankruptcy case. The dependent variable for probit regressions (1 = 363 Assets Sale) is an indicator variable equal to one when the firm sells at least five percent of pre-petition book value of assets through a 363 sale. Coefficients from the probit regressions are reported as marginal probabilities, evaluated at the sample means. The dependent variable for Tobit regressions (Sale Proceeds to Assets) is the ratio of total deal value for all 363 sales prior to plan confirmation (or final liquidation) divided by pre-petition book assets (censored at zero). Continuous variables are de-meaned and normalized by their standard deviation. The independent variables are defined in Appendix Table A-1 and are dated at the time of the bankruptcy filing or within the second year prior to the bankruptcy filing (where [t-1] is noted next to the explanatory variable). ***, **, and * denote statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively, using heteroskedasticity-robust standard errors and clustering by year of filing. Z-statistics are reported in parentheses or omitted for brevity.

	Incidence of Sales [Probit]				Magnitude of Sales [Tobit]			
	1 = 363 Asset Sale				*Sale Proceeds to Assets*			
Explanatory Variables	[1]	[2]	[3]	[4]	[1]	[2]	[3]	[4]
Secured Debt Ratio	**0.071*** **	**0.070*** **	**0.057*** **	**0.048*** **	**0.061** **	**0.052** **	**0.051***	**0.061** **
	(5.858)	(5.492)	(4.626)	(4.891)	(2.587)	(2.066)	(1.938)	(2.460)
B - BBB Spread		**0.030**	**-0.076**	**-0.072***		**0.081*** **	**0.062**	**0.067**
		(1.316)	(-1.560)	(-1.804)		(4.139)	(1.104)	(1.150)
Negative Shock (Industry)		**-0.076**	**-0.075**	**-0.069**		**-0.003**	**-0.005**	**0.004**
		(-0.997)	(-1.428)	(-1.562)		(-0.032)	(-0.052)	(0.042)
Positive Shock (Industry)		**-0.061**	**-0.067**	**-0.051**		**-0.014**	**-0.015**	**-0.019**
		(-0.997)	(-1.329)	(-1.143)		(-0.216)	(-0.233)	(-0.317)
*Neg. Shock (Ind) * (B - BBB Spread)*			**0.188*** **	**0.180*** **			**0.033**	**0.031**
			(3.232)	(3.738)			(0.441)	(0.459)
*Pos. Shock (Ind) * (B - BBB Spread)*			**0.155*** **	**0.155*** **			**0.021**	**0.032**
			(3.518)	(4.518)			(0.289)	(0.507)
Industry Financial Dependence				**-0.011**				**0.083**
				(-0.304)				(1.363)
*Ind. Financial Dep. * (B - BBB Spread)*				**0.021*** **				**0.090** **
				(3.083)				(2.570)
Industry Concentration (HHI)				**-0.060**				**0.088** **
				(-1.195)				(1.981)
*Neg. Shock (Ind) * HHI*				**-0.067*** **				**-0.051** **
				(-2.685)				(-2.064)
*Pos. Shock (Ind) * HHI*				**0.045**				**-0.025**
				(0.655)				(-0.501)
Defined Benefit Pension	**-0.010**	**-0.000**	**-0.019**	**-0.009**	**0.080** **	**0.085** **	**0.083** **	**0.091** **
Court Busyness	**-0.011**	**-0.003**	**0.001**	**0.009**	**0.009**	**0.020**	**0.021**	**0.037**
Industry Market to Book	**-0.024**	**-0.005**	**0.006**	**0.014**	**0.028**	**0.089*** **	**0.090*** **	**0.105*** **
EBITDA / Assets [t-1]	**-0.001**	**-0.005**	**-0.003**	**-0.001**	**0.074**	**0.069**	**0.070**	**0.072**
Book Leverage [t-1]	**-0.131** **	**-0.133***	**-0.136***	**-0.122***	**-0.139** **	**-0.144** **	**-0.144** **	**-0.146** **
Sales Growth [t-1]	**-0.012**	**-0.012**	**-0.013**	**-0.002**	**0.001**	**-0.000**	**0.000**	**-0.005**
Log of Book Assets [t-1]	**0.047** **	**0.052** **	**0.060*** **	**0.046*** **	**0.039**	**0.033**	**0.033**	**0.036**
Non-cash Current Assets / Assets [t-1]	**0.043**	**0.046**	**0.052**	**0.040**	**0.043** **	**0.034**	**0.035**	**0.024**
Cash Holdings / Assets [t-1]	**0.029**	**0.028**	**0.020**	**0.017**	**0.050**	**0.035**	**0.034**	**0.034**
PP&E / Assets [t-1]	**-0.070*** **	**-0.077*** **	**-0.085*** **	**-0.078*** **	**-0.018**	**-0.022**	**-0.021**	**-0.027**
Industry Effects [F-F 49]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Court and Pre-Pack Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	350	350	350	350	350	350	350	350
Unconditional Probability	0.323	0.323	0.323	0.323	-	-	-	-
Pseudo R-Squared	0.386	0.391	0.410	0.420	0.298	0.313	0.314	0.361

Table 5
Bankruptcy Case Outcomes

This table reports multinomial logit regressions for the bankruptcy case outcome. The dependent variable takes one of three outcomes: 1) all of the firm's assets are sold in 363 sales, where a majority of the assets are preserved as a going concern (Sale of All Assets as Going Concern), 2) the firm's assets are liquidated or sold piecemeal in 363 sales (Liquidation or Piecemeal Sale), or 3) the firm completes a reorganization plan (the base outcome). Coefficients from the multinomial logit regressions are reported as relative risk ratios, interpreted as the increase in probability of the given outcome divided by increase in probability of a reorganization for a unit change in the independent variable. Continuous variables are de-meaned and normalized by their standard deviation. The independent variables are defined in Appendix Table A-1 and are dated at the time of the bankruptcy filing or in the second year prior to the bankruptcy filing (where [t-1] is noted next to the explanatory variable). ***, **, and * denote statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively, using heteroskedasticity-robust standard errors and clustering by year of filing. Z-statistics are reported in parentheses.

	Case Outcome Type [Multinomial-Logit]							
	Sale of All Assets as Going Concern				*Liquidation or Piecemeal Sale*			
Explanatory Variables	[1]	[2]	[3]	[4]	[1]	[2]	[3]	[4]
Secured Debt Ratio	**1.428*** **	**1.375*** **	**1.285** **	**1.386*** **	**1.099**	**1.054**	**0.997**	**1.027**
	(3.906)	(3.133)	(2.243)	(3.122)	(0.714)	(0.374)	(-0.020)	(0.168)
B - BBB Spread		**1.432*** **	**0.777**	**0.859**		**1.184**	**0.828**	**0.888**
		(3.112)	(-1.243)	(-0.674)		(1.033)	(-0.740)	(-0.492)
Negative Shock (Industry)		**0.873**	**0.913**	**1.166**		**1.705**	**1.909**	**2.316**
		(-0.221)	(-0.146)	(0.274)		(1.204)	(1.530)	(1.538)
Positive Shock (Industry)		**1.095**	**1.284**	**1.374**		**0.898**	**1.052**	**1.167**
		(0.169)	(0.619)	(0.750)		(-0.146)	(0.087)	(0.275)
*Neg. Shock (Ind) * (B - BBB Spread)*			**2.195*** **	**2.827*** **			**1.461**	**1.529**
			(2.889)	(3.527)			(1.296)	(1.398)
*Pos. Shock (Ind) * (B - BBB Spread)*			**4.323*** **	**6.116*** **			**3.522** **	**3.953** **
			(3.391)	(5.126)			(2.426)	(2.303)
Industry Financial Dependence				**1.629** **				**1.028**
				(2.379)				(0.079)
*Ind. Financial Dep. * (B - BBB Spread)*				**1.970*** **				**1.394**
				(3.984)				(1.554)
Industry Concentration (HHI)				**0.931**				**1.660**
				(-0.634)				(1.336)
*Neg. Shock (Ind) * HHI*				**0.636***				**0.568**
				(-1.761)				(-1.206)
*Pos. Shock (Ind) * HHI*				**1.548***				**0.789**
				(1.948)				(-0.509)
Defined Benefit Pension	**1.008**	**1.069**	**0.944**	**1.045**	**1.212**	**1.312**	**1.226**	**1.294**
Court Busyness	**1.094**	**1.148**	**1.129**	**1.243**	**0.878**	**0.831**	**0.800**	**0.788**
Industry Market to Book	**1.202**	**1.392**	**1.423**	**1.679***	**0.613**	**0.757**	**0.759**	**0.850**
EBITDA / Assets [t-1]	**1.036**	**1.036**	**1.133**	**1.172**	**0.871**	**0.865**	**0.907**	**0.882**
Book Leverage [t-1]	**0.447*** **	**0.428*** **	**0.395*** **	**0.326*** **	**0.629** **	**0.590** **	**0.551*** **	**0.548** **
Sales Growth [t-1]	**0.850***	**0.848** **	**0.825** **	**0.808***	**0.932**	**0.926**	**0.893**	**0.895**
Log of Book Assets [t-1]	**0.775**	**0.746***	**0.717** **	**0.666***	**0.464*** **	**0.454*** **	**0.432*** **	**0.450*** **
Non-cash Current Assets / Assets [t-1]	**1.327** **	**1.330** **	**1.356** **	**1.223**	**1.678**	**1.613**	**1.640**	**1.534**
Cash Holdings / Assets [t-1]	**1.383***	**1.366**	**1.463** **	**1.363***	**1.589** **	**1.533** **	**1.608** **	**1.595***
PP&E / Assets [t-1]	**0.748***	**0.753** **	**0.725***	**0.577** **	**1.022**	**1.071**	**1.038**	**1.026**
Industry Effects [F-F 12]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Court and Pre-Pack Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	350	350	350	350	350	350	350	350
Unconditional Probability	0.214	0.214	0.214	0.214	0.109	0.109	0.109	0.109
Pseudo R-Squared	0.258	0.269	0.288	0.313	0.258	0.269	0.288	0.313

Table 6

Pre-Petition Debt Structure and Asset Sales in Bankruptcy

This table reports probit and bivariate probit regressions for the incidence of Section 363 sales and the bankruptcy case outcome. The first dependent variable (1=Asset Sales) is an indicator variable equal to one when the firm sells assets valued at least five percent of pre-petition book value through a 363 sale. The second dependent variable (1=Sale of All Assets as Going Concern) is an indicator variable equal to one when the firm sells all assets through 363 sales and a majority of assets are preserved as a going concern. Coefficients are reported as marginal probabilities, evaluated at the sample means. Continuous variables are de-meaned and normalized by their standard deviation. The independent variables are defined in the Appendix Table A-1 and are dated at the time of the bankruptcy filing or in the second year prior to the bankruptcy filing (where [t-1] is noted next to the explanatory variable). Specifications 3a and 6a (3b and 6b) correspond to the first (second) stage of the bivariate probit model. ***, **, and * denote statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively, using heteroskedasticity-robust standard errors and clustering by year of filing. Z-statistics are reported in parentheses.

	363 Sales in Bankruptcy				Case Outcome Type			
	1 = Asset Sales				*1 = Sale of All Assets as Going Concern*			
	Probit		*IV-Bivariate Probit*		*Probit*		*IV-Bivariate Probit*	
Explanatory Variable	[1]	[2]	[3a]	[3b]	[4]	[5]	[6a]	[6b]
≥ 50% Secured [Filing]	**0.071****	**0.106***		**0.105*****	**0.111*****	**0.153**		**0.144*****
	(2.072)	(1.800)		(4.619)	(2.789)	(1.499)		(4.746)
Over-Collateralized		**-0.008**				**-0.008**		
		(-0.130)				(-0.067)		
*≥ 50% Secured * Over-Coll.*		**-0.124****				**-0.149*****		
		(-2.396)				(-2.617)		
Loan vs. Bond Mkt. Issuance [3 Yr]			**0.022*****				**0.022*****	
			(4.993)				(4.273)	
Public Bond Market Access [t-1]			**-0.045*****				**-0.035**	
			(-3.773)				(-1.594)	
EBITDA / Assets [t-1]	**0.007**	**0.001**		**0.003**	**0.018**	**0.057**		**0.005**
	(0.202)	(0.022)		(0.228)	(0.676)	(1.423)		(0.538)
EBITDA Volatility [t-1]	**-0.001**	**0.036**		**-0.001**	**0.063**	**0.053**		**0.019**
	(-0.033)	(1.295)		(-0.091)	(1.416)	(1.152)		(1.350)
Book Leverage [t-1]	**-0.119*****	**-0.074*****		**-0.045*****	**-0.164*****	**-0.132*****		**-0.045****
	(-2.685)	(-3.858)		(-2.795)	(-2.941)	(-2.729)		(-2.420)
PP&E / Assets [t-1]	**-0.058****	**-0.063****		**-0.024****	**-0.047**	**-0.058**		**-0.014**
	(-2.110)	(-2.011)		(-2.113)	(-1.475)	(-1.638)		(-1.361)
Non-cash Current Assets / Assets [t-1]	**0.032**	**0.055**		**0.011**	**0.061*****	**0.072*****		**0.017*****
	(0.979)	(1.579)		(0.875)	(3.156)	(3.456)		(3.034)
Cash Holdings [t-1]	**0.018**	**-0.029**		**0.006**	**0.034**	**0.002**		**0.008**
	(0.443)	(-0.612)		(0.364)	(0.997)	(0.058)		(0.816)
Log of Book Assets [t-1]	**0.011**	**0.029**		**0.006**	**-0.030**	**-0.008**		**-0.006**
	(0.593)	(1.083)		(0.825)	(-0.870)	(-0.262)		(-0.604)
Sales Growth [t-1]	**-0.019**	**-0.018**		**-0.007**	**-0.029***	**-0.036**		**-0.007**
	(-1.219)	(-0.749)		(-1.251)	(-1.837)	(-1.388)		(-1.377)
Industry Effects [F-F 12]	Yes	Yes	No	Yes	Yes	Yes	No	Yes
Court and Pre-Pack Effects	Yes	Yes	No	Yes	Yes	Yes	No	Yes
Exclude Liquidation/PiecemealSale	No	No	No	No	Yes	Yes	Yes	Yes
N	350	260	350	350	312	244	312	312

Table 7

Time from Filing to Asset Sales in Bankruptcy

This table reports proportional hazard models for the time to a 363 sale from the bankruptcy filing date. The dependent variable (Days to First Sale) is the number of days from filing until the firm sells a business division or all assets through a 363 sale. In cases where a sale event does not occur before confirmation of a plan (i.e., censored observations in the model), the dependent variable is equal to the number of days from filing until confirmation of a plan. Coefficients from the models are reported as hazard ratios. Continuous variables are de-meaned and normalized by their standard deviation. The specifications in columns [1]-[3] control for cases with pre-packaged plans while the specifications in columns [4]-[6] exclude cases with pre-packaged plans from the regression sample. The independent variables are defined in the Data Appendix Table A-1 and are dated at the time of the bankruptcy filing or in the second year prior to the bankruptcy filing (where [t-1] is noted next to the explanatory variable). ***, **, and * denote statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively, using heteroskedasticity-robust standard errors and clustering by year of filing. Z-statistics are reported in parentheses.

	Days to First Sale [Cox Proportional Hazard]					
Explanatory Variables	[1]	[2]	[3]	[4]	[5]	[6]
Secured Debt Ratio	**1.239*** **	**1.263** **	**1.238** **	**1.319** **	**1.286**	**1.283**
	(3.413)	(2.283)	(2.072)	(2.304)	(1.604)	(1.518)
Industry Market to Book	**1.200**	**1.299**	**1.368**	**1.475**	**1.407**	**1.414**
	(1.612)	(0.810)	(1.037)	(1.567)	(1.180)	(1.236)
Industry Concentration (HHI)	**0.978**	**0.839**	**0.879**	**0.939**	**0.725**	**0.740**
	(-0.206)	(-0.914)	(-0.683)	(-0.489)	(-1.565)	(-1.495)
Industry Financial Dependence	**1.079**	**0.885**	**0.954**	**1.022**	**1.036**	**1.138**
	(1.189)	(-0.434)	(-0.126)	(0.223)	(0.102)	(0.327)
Negative Shock (Industry)	**0.738**	**0.829**	**0.912**	**0.663**	**0.900**	**0.948**
	(-0.737)	(-0.311)	(-0.156)	(-1.273)	(-0.222)	(-0.115)
Positive Shock (Industry)	**1.070**	**1.096**	**1.104**	**1.289**	**1.551**	**1.626***
	(0.275)	(0.238)	(0.268)	(0.976)	(1.393)	(1.719)
B - BBB Spread		**1.208***	**1.048**		**1.173**	**0.946**
		(1.761)	(0.212)		(1.544)	(-0.303)
*HHI * (B - BBB Spread)*			**1.037**			**1.057**
			(0.536)			(0.850)
*Ind. Financial Dep. * (B - BBB Spread)*			**1.446***			**1.199**
			(1.951)			(1.085)
*Neg. Shock (Ind) * (B - BBB Spread)*			**1.453***			**1.529*****
			(1.902)			(2.621)
*Pos. Shock (Ind) * (B - BBB Spread)*			**1.288**			**1.304**
			(0.886)			(1.173)
Defined Benefit Pension	**1.090**	**1.212**	**1.204**	**0.979**	**1.091**	**1.044**
	(0.602)	(1.039)	(0.884)	(-0.096)	(0.312)	(0.162)
Court Busyness	**1.062**	**1.065**	**1.080**	**1.212**	**1.291**	**1.322**
	(0.462)	(0.422)	(0.504)	(1.064)	(1.304)	(1.419)
EBITDA / Assets [t-1]	**1.009**	**0.946**	**0.933**	**0.945**	**0.889**	**0.904**
EBITDA Volatility [t-1]	**0.792**	**0.929**	**0.903**	**0.703**	**1.031**	**0.993**
Book Leverage [t-1]	**0.780**	**0.726**	**0.730**	**0.696**	**0.576** **	**0.588** **
PP&E / Assets [t-1]	**0.698** **	**0.614*****	**0.603*****	**0.648*****	**0.490*****	**0.490*****
Non-cash Current Assets / Assets [t-1]	**1.228**	**1.599*****	**1.592*****	**1.223**	**1.415** **	**1.397** **
Cash Holdings / Assets [t-1]	**1.327*****	**1.382*****	**1.335*****	**1.296** **	**1.181** **	**1.151***
Log of Book Assets [t-1]	**1.185***	**1.224***	**1.249***	**1.088**	**1.106**	**1.104**
Sales Growth [t-1]	**1.094**	**0.929**	**0.902**	**1.075**	**0.935**	**0.929**
Industry Effects [F-F 49]	Yes	Yes	Yes	Yes	Yes	Yes
Year of Filing Effects	Yes	No	No	Yes	No	No
Court Effects	Yes	Yes	Yes	Yes	Yes	Yes
Pre-Packaged Cases	Control	Control	Control	Exclude	Exclude	Exclude
N	349	349	349	226	226	226
Pseudo R-Squared	0.047	0.074	0.077	0.060	0.093	0.096

Table 8
Creditor Recoveries

This table reports OLS regressions for creditor recoveries (discounted recoveries from Moody's URD database). The first dependent variable represents the overall recovery to all pre-petition debtholders as a proportion of principal owed at filing. The second (third) dependent variable represents the recovery to pre-petition secured (unsecured) debtholders as a proportion of secured (unsecured) debt at filing. Continuous variables are de-meaned and normalized by their standard deviation. The independent variables are defined in Appendix Table A-1 and are dated at the time of the bankruptcy filing or in the second year prior to the bankruptcy filing (where [t-1] is noted next to the explanatory variable). ***, **, and * denote statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively, using heteroskedasticity-robust standard errors and clustering by year of filing. T-statistics are reported in parentheses or omitted for brevity.

	Overall Recovery			*Secured Recovery*			*Unsecured Recovery*		
Explanatory Variables	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]
Sale of All Assets (GC)	**-0.028**	**-0.055**	**-0.058**	**-0.031**	**0.050**	**0.050**	**-0.151***	**-0.162***	**-0.161**
	(-0.477)	(-1.015)	(-1.049)	(-0.463)	(0.724)	(0.725)	(-1.973)	(-1.859)	(-1.732)
Liquidation or Piecemeal Sale			**0.046**			**0.076**			**-0.048**
			(0.589)			(0.469)			(-0.303)
Secured Debt Ratio		**0.065*****	**0.074*****		**-0.144*****	**-0.137*****		**-0.058**	**-0.045**
		(3.962)	(3.880)		(-5.373)	(-5.482)		(-1.105)	(-0.830)
Industry Market to Book		**0.005**	**0.025**		**0.029**	**0.032**		**0.018**	**0.039**
		(0.153)	(0.940)		(0.949)	(1.049)		(0.507)	(1.133)
Industry Concentration (HHI)		**-0.048**	**-0.054**		**-0.132***	**-0.138****		**0.041**	**0.047**
		(-1.039)	(-1.290)		(-2.232)	(-2.356)		(0.473)	(0.503)
Industry Financial Dependence		**-0.025**	**-0.007**		**-0.144****	**-0.134****		**0.054**	**0.082**
		(-0.505)	(-0.172)		(-2.525)	(-3.103)		(0.513)	(0.807)
Negative Shock (Industry)		**-0.130****	**-0.119****		**-0.048**	**-0.051**		**-0.221****	**-0.188****
		(-2.930)	(-3.030)		(-1.096)	(-1.275)		(-3.185)	(-2.778)
Positive Shock (Industry)		**0.089**	**0.080**		**0.057**	**0.055**		**-0.006**	**-0.004**
		(1.646)	(1.454)		(0.928)	(0.835)		(-0.065)	(-0.049)
B - BBB Spread		**0.020**	**0.018**		**0.051**	**0.028**		**0.071**	**0.074**
		(0.649)	(0.674)		(1.204)	(0.670)		(1.320)	(1.248)
*HHI * (B - BBB Spread)*		**0.062***	**0.029***		**0.050**	**0.042**		**0.082**	**0.006**
		(2.122)	(2.048)		(1.439)	(1.214)		(1.147)	(0.145)
*Ind. Financial Dep. * (B - BBB Spread)*		**0.006**	**0.003**		**0.020***	**0.020****		**-0.004**	**-0.009**
		(0.856)	(0.441)		(2.128)	(2.871)		(-0.206)	(-0.502)
*Neg. Shock (Ind) * (B - BBB Spread)*		**0.030**	**0.037**		**0.001**	**0.019**		**-0.030**	**-0.042**
		(0.678)	(1.009)		(0.012)	(0.418)		(-0.440)	(-0.582)
*Pos. Shock (Ind) * (B - BBB Spread)*		**-0.097**	**-0.076**		**-0.116***	**-0.083**		**-0.004**	**-0.022**
		(-1.800)	(-1.649)		(-1.852)	(-1.161)		(-0.044)	(-0.232)
Defined Benefit Pension		**0.014**	**-0.009**		**-0.020**	**-0.010**		**0.084**	**0.056**
		(0.222)	(-0.124)		(-0.411)	(-0.198)		(1.574)	(1.398)
Court Busyness		**0.013**	**0.016**		**0.018**	**0.026**		**-0.006**	**-0.007**
		(0.498)	(0.538)		(0.938)	(1.214)		(-0.174)	(-0.203)
EBITDA / Assets [t-1]		**0.046***	**0.029**		**0.025**	**0.019**		**0.015**	**-0.003**
EBITDA Volatility [t-1]		**-0.047***	**-0.044***		**-0.042**	**-0.042**		**-0.036**	**-0.033**
Book Leverage [t-1]		**0.006**	**0.008**		**0.027**	**0.027**		**-0.014**	**-0.008**
PP&E / Assets [t-1]		**0.003**	**0.002**		**0.013**	**0.006**		**-0.021**	**-0.023**
Non-cash Current Assets / Assets [t-1]		**0.042**	**0.009**		**0.006**	**0.003**		**0.089**	**0.052**
Cash Holdings / Assets [t-1]		**-0.009**	**-0.017**		**-0.018**	**-0.016**		**-0.044**	**-0.050***
Log of Book Assets [t-1]		**0.023**	**0.027**		**0.035***	**0.032***		**-0.013**	**-0.010**
Sales Growth [t-1]		**0.027****	**0.012**		**0.046***	**0.040***		**0.009**	**-0.009**
Industry Effects [F-F 49]	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Court and Pre-Pack Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Excl. Liquidation/Sold Piecemeal	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No
N	244	244	260	209	209	222	179	179	185
Adjusted R-Squared	-0.003	0.133	0.140	-0.003	0.264	0.227	0.016	0.071	0.057

Table 9

Post-Bankruptcy Survival

This table compares post-bankruptcy survival outcomes for firms that emerge from bankruptcy through a Section 363 sale to a financial buyer, such as a private equity firm, to firms that emerge under a reorganization plan. For up to three years from the closing date of the sale or bankruptcy exit (for reorganizations), we show post-bankruptcy outcomes according to whether 1) the firm is maintained as an independent going concern, 2) the firm is subsequently merged with another operating company, or 3) the firm refiles for bankruptcy. Across the columns, we show survival outcomes for reorganizations compared with sales to financial buyers. Of the 75 sales to financial buyers, 52 are a sale of an operating division and 23 (shown separately) are sales of all assets to a single financial buyer. We compare the relative odds of survival outcomes at each horizon for sales to a financial buyer relative to a reorganization. Next to each odds ratio, we show the p-value of a test against an odds ratio of one (indicating the characteristic is equally likely in both groups). Counts reported for the three year horizon exclude 15 observations where less than three years of survival history are available.

		Reorganization (Base Group)		*Sale of All Assets or Business Division as Going Concern*				*Sale of All Assets as Going Concern*			
		Incidence		Incidence		Equal Odds Test		Incidence		Equal Odds Test	
Horizon	**Survival Outcome**	**Count**	**Percent**	**Count**	**Percent**	**Odds Ratio**	**P-Value**	**Count**	**Percent**	**Odds Ratio**	**P-Value**
Total Observations		**228**		**75**				**23**			
1 Year	*Independent*	215	94.3%	71	94.7%	1.07	0.90	22	95.7%	1.33	0.79
	Merger	9	4.0%	3	4.0%	1.01	0.98	1	4.4%	1.11	0.93
	Refiles	4	1.8%	1	1.3%	0.76	0.80	0	0.0%	-	-
2 Years	*Independent*	186	84.2%	67	89.3%	1.58	0.28	19	82.6%	0.89	0.85
	Merger	21	9.5%	5	6.7%	0.68	0.46	2	8.7%	0.91	0.90
	Refiles	14	6.3%	3	4.0%	0.62	0.46	2	8.7%	1.41	0.67
3 Years	*Independent*	159	74.7%	60	80.0%	1.36	0.35	17	73.9%	0.96	0.94
	Merger	30	14.1%	8	10.7%	0.73	0.45	2	8.7%	0.58	0.48
	Refiles	24	11.3%	7	9.3%	0.81	0.64	4	17.4%	1.66	0.39

Table A-1
Data Appendix: Bankruptcy Event Level Database

Variable Name	Type	Description
Pre-packaged	Yes/No	The firm has a pre-negotiated reorganization plan at filing.
Reorganization	Yes/No	The firm reorganizes in Chapter 11 and emerges as an independent going concern.
Sale of All Assets	Yes/No	The firm sells substantially all assets through 363 sales, where a majority of assets are sold as a going concern.
Liquidation or Sold Piecemeal	Yes/No	The firm is liquidated under a plan or sold piecemeal through 363 sales prior to confirmation of a plan, where a majority of assets are not preserved as a going concern.
Sale of Business Division	Yes/No	The firm sells an operating business division, core asset, or substantially all assets through a 363 sale prior to confirmation of a plan.
Sale of Other Assets	Yes/No	The firm sells some other tangible or intangible assets through a 363 sale.
Sale Proceeds to Assets	Ratio	*Proceeds from 363 Sales / Pre-Petition Book Assets* The ratio of total consideration paid (including cash, stock, debt, assumed liabilities, and credit bids) for all 363 sales prior to plan confirmation divided by book assets from Compustat (ATQ) in the first available quarter prior to the bankruptcy filing date.
Time to Confirmation	Value	The number of years from filing to confirmation of a reorganization plan, a liquidating plan following a sale of assets, or conversion to a Chapter 7 case.
Time to First Sale	Ratio	The number of years from filing to closing of the first 363 sale of a business division or core asset prior to plan confirmation.
Secured Debt Ratio	Ratio	*Secured Debt Outstanding / Debt Principal Outstanding* The ratio of debt principal secured by collateral divided by total debt principal outstanding. For calculating the secured debt ratio at filing, where available, we first use the ratio of secured debt principal to total principal from Moody's. Where we are missing the Moody's data, we fill in the secured debt ratio using the first available 10-K filing prior to the bankruptcy filing date (up to 2 years). The secured debt ratio at the 10-K filing is obtained from CapitalIQ's Debt Structure database or hand-collected from the 10-K footnotes. Where the secured debt ratio from Moody's URD and pre-petition 10-K filings are both available, the correlation coefficient is greater than 0.9.
Revolver Debt Ratio	Ratio	*Drawn Revolver Debt Outstanding / Debt Principal Outstanding* The ratio of debt principal drawn from bank credit lines divided by total debt principal outstanding. For calculating the revolver debt ratio at filing, we use the same methodology described for the *Secured Debt Ratio* field.
Term Loan Debt Ratio	Ratio	*Drawn Term Loan Debt Outstanding / Debt Principal Outstanding* The ratio of debt principal drawn from bank or institutional term loans divided by total debt principal outstanding. For calculating the term loan debt ratio at filing, we use the same methodology described for the *Secured Debt Ratio* field.
≥ 50% Non-Bank Lenders	Yes/No	A majority of lenders in the primary syndicates of all outstanding loans were non-bank lenders, such as CLOs, mutual funds, or hedge funds.
Loan vs Bond Market Issuance	Ratio	Aggregate issuance of (secured) loans to aggregate issuance volume of (unsecured) high yield bonds from U.S. firms rated B or BB over the prior 3 years.
Public Bond Market Access	Yes/No	The firm has an issuer-level credit rating from S&P or Moody's in the second year prior to filing.
Collateral	Category	The type of collateral backing the secured debt of the firm: 1) all assets, 2) current assets (e.g., accounts receivable or inventory), 3) PP&E or 4) other assets.
Over-Collateralized	Yes/No	The value of the collateral was likely greater than the claims of the secured creditors. We code this field as "Yes" if the overall ex-post recovery to creditors was more than 5 percent higher than the pre-petition *Secured Debt Ratio* .
Has DIP Financing	Yes/No	The firm obtained debtor-in-possession financing.
Milestone for Plan	Yes/No	The DIP lender set a deadline for approval of a disclosure statement or plan confirmation. We code this field as "Yes" if it is an event of default under the DIP credit agreement not to have a disclosure statement or plan approved by a certain date.

Table A-1
Data Appendix: Bankruptcy Event Level Database

Variable Name	Type	Description
Milestone for 363 Sale	Yes/No	The DIP lender set terms that dictated a potential 363 sale. We code this field as "Yes" if it was an event of default under the DIP credit agreement not to have an order approving a sale or bidding procedures by a certain date.
363 Process Control	Yes/No	The DIP lender controlled the process of a 363 sale of assets. For example, the DIP agreement required the firm to seek approval for bidding procedures.
Pre-Petition Rollup	Yes/No	The DIP financing was provided by a pre-petition lender, who refinanced an existing pre-petition claim with the new DIP financing.
Priming Lien	Yes/No	The DIP financing is granted super-senior priority in the capital structure above the priority of pre-petition secured lenders.
B - BBB Spread	Value (bps)	Aggregate mean spread (in basis points) between yield to maturity at issuance for bonds with a B credit rating and bonds with a BBB credit rating.
C&I Spread	Value (bps)	Aggregate mean spread (in basis points) between commercial and industrial loan rates (calculated by Federal Reserve) and the federal funds rate.
Industry Market to Book	Ratio	*Industry Median: Market Value of Assets / Book Assets* Compustat: [ATQ(t) - CEQQ(t) - TXDITCQ(t) + (PRCCQ(t) x CSHOQ(t))] / ATQ(t)
Industry Concentration	Ratio	Herfindahl–Hirschman Index of industry concentration. The index is calculated as the sum of the squared market shares across all firms within an industry. We measure market shares using firms' sales relative to total sales for the industry in Compustat.
Industry Financial Dependence	Ratio	Measure from Rajan and Zingales (1998), calculated as the industry median of Compustat: [CAPXQ(t, t-39) - OANCFQ(t, t-39)] / CAPXQ(t, t-39)
Negative/Positive Shock (Industry)	Yes/No	For negative (positive) industry shock variable, median industry sales growth or median industry cumulative stock return for the year prior to filing are in the lowest (highest) sample quartile and neither variable is in the highest (lowest) sample quartile.
Defined Benefit Pension	Yes/No	Projected pension defined benefit obligation is greater than 5 percent of book assets.
Court Busyness	Ratio	The number of Chapter 11 filings received by the same court in the same quarter, de-meaned and normalized by the standard deviation of filings per quarter in the same court over the sample period (2002-2011).
Book Assets	$ in Mill.	*Book Assets* Compustat: ATQ(t)
EBITDA / Assets	Ratio	*EBITDA / Lagged Book Assets* Compustat: Four-Quarter Rolling Average of OIBDPQ(t, t-3) / ATQ(t-4)
EBITDA Volatility	Ratio	*3-year Standard Deviation of EBITDA / Lagged Book Assets* Compustat: 3-year Standard Deviation of ΔOIBDPQ(t) / ATQ(t-1)
Book Leverage	Ratio	*Total Book Debt / Book Assets* Compustat: [DLTTQ(t) + DLCQ(t)]/ATQ(t)
PP&E / Assets	Ratio	*PP&E / Book Assets* Compustat: PPENTQ(t) / ATQ(t)
Non-cash Current Assets	Ratio	*[Current Assets - Cash] / Book Assets* Compustat: [ACTQ(t) - CHEQ(t)] / ATQ(t)
Cash Holdings / Assets	Ratio	*Cash / Book Assets* Compustat: CHEQ(t) / ATQ(t)
Sales Growth	Ratio	*Δ Sales / Lagged Sales* Compustat: Four-Quarter Rolling Average of [REVTQ(t) / REVTQ(t-4)] - 1
Overall Recovery	Ratio	Real recoveries to all creditors, weighted by principal outstanding at the time of filing (Family Recovery Rate from Moody's)
Secured Recovery	Ratio	Real recoveries to secured creditors, weighted by secured principal outstanding at the time of filing (based on instrument-level Moody's recoveries)
Unsecured Recovery	Ratio	Real recoveries to unsecured creditors, weighted by unsecured principal outstanding at the time of filing (based on instrument-level Moody's recoveries)

Table A-2
Bankruptcy Case Outcome Examples

Debtor	Court	Filing Date	Type of 363 Sale	Case Summary
Outcome (1): Going Concern Preserved - Reorganization [237 Cases]				
Young Broadcasting	SD NY	2/13/2009	No Sales	There are no asset sales during the case. Under a plan of reorganization, pre-petition lenders swap a $338 million claim for $75 million in new term notes and all of Young Broadcasting's common stock. Young Broadcasting is publicly-traded prior to the bankruptcy filing, but becomes privately owned by its senior lenders upon exit from bankruptcy.
Anchor Glass Container	FL MD	4/15/2002	No Sales	There are no asset sales during the case. Under a pre-packaged plan of reorganization, Anchor Glass restructures its bonds and receives a $100 million equity infusion from private equity investor Cerberus Capital Management.
Dura Automotive	DE	10/30/2006	Sale of Business Division	Dura Automotive sells their Atwood Mobile Products business to stalking horse bidder Insight Equity (a private equity investor) for an uncontested offer of $160 million in cash. In a separate sale, Dura sells their jack and tool kit business to Autoline Industries (a competing auto parts manufacturer) for $1 million in cash. Dura reorganizes its remaining operating assets under a plan where senior noteholders convert their claims into 95 percent of the new common stock.
Footstar	SD NY	3/2/2004	Sale of Business Division	Footstar sells its Footaction business to Foot Locker (a competing retailer) for $225 million in cash. Foot Locker makes an initial stalking horse offer of $160 million, but raises its offer when rival Finish Line and others submit competing bids at the auction. Footstar reorganizes around its remaining discount shoe business.
Tribune Company	DE	12/8/2008	Sale of Business Division	Tribune sells the Chicago Cubs baseball team to Ricketts Family Foundation for $845 million in total consideration, including $740 million in cash. Tribune's remaining assets are reorganized under a plan where senior lenders exchange debt claims for a substantial equity stake. Oaktree (a private equity investor) becomes the largest shareholder with a 22 percent stake.
Mattress Discounters	MD	10/22/2002	Sale of Other Assets	Mattress Discounters sells 32 stores to Mattress Gallery and Mattress World (two competing retailers) for $2 million in cash. With over 100 stores remaining, the bankruptcy court approves a plan of reorganization where unsecured creditors receive all of Mattress Discounters' new common stock.
Outcome (2): Going Concern Preserved - Sale of All Assets [75 Cases]				
Blockbuster	SD NY	9/23/2010	Sale of Business Division	Blockbuster sells substantially all operating assets to Dish Network for $320 million ($228 million in cash and $92 million in assumed liabilities). Cobalt Video (controlled by Carl Icahn) is the stalking horse bidder with an initial offer of $290 million. A liquidating plan distributes the sale proceeds to creditors.
General Motors	SD NY	6/1/2009	Sale of Business Division	Substantially all of General Motor's operating assets are sold to Vehicle Acquisition Holdings (a group represented by the U.S. Treasury, the Canadian government and other parties) for $28.8 billion in cash plus other consideration including a $24.2 billion credit bid. After the sale, the remaining estate include the sale proceeds and certain residual assets. A liquidating plan distributes the value of the remaining estate to creditors.
Milacron	OH SD	3/10/2009	Sale of Business Division	Substantially all of Milacron's operating assets are sold to stalking horse bidder DDJ Capital (a private equity investor) for $181 million, including $175 million in cash and a credit bid of pre-petition secured notes for $6 million. After the sale, the case is converted to a Chapter 7 liquidation that distributes the sale proceeds to creditors.

Table A-2
Bankruptcy Case Outcome Examples

Debtor	Court	Filing Date	Type of 363 Sale	Case Summary
National Steel	IL ND	3/6/2002	Sale of Business Division	Substantially all of National Steel's operating assets are sold to U.S. Steel Corp (a competing steel producer) for $1.05 billion ($850 million in cash and $200 million in assumed liabilities). The debtor rejects a higher cash bid of $925 million from AK Steel Holding because the offer does not include an agreement with unionized workers. A liquidating plan distributes the sale proceeds to creditors.
Tokheim Corp	DE	11/21/2002	Sale of Business Division	Substantially all of Tokheim's operating assets are sold in three separate sales: 1) Private equity firm AXA sponsors a management buyout of Tokheim's international operations for $162 million in cash, 2) First Reserve Corp acquires Tokheim's MSI division for $18 million, and 3) Danaher Corp acquires Tokheim's Gosboy International division for $28 million. A liquidating plan distributes the sale proceeds to creditors.
Archibald Candy	IL ND	1/28/2004	Sale of Business Division	Substantially all of Archibald's operating assets are sold in three separate sales: 1) Alpine Confections acquires Archibald's Fannie May Confections business for $39 million in cash (a premium of $21 million to its original stalking horse offer), 2) Van Buren & Aberdeen acquires real estate assets for $12 million, and 3) liquidators Gordon Brothers and EG Capital acquire the remaining assets for $20.86 (outbidding M&M Meat Shops in an auction). Sale proceeds are distributed under a liquidating plan.
			Outcome (3): Liquidation or Piecemeal Sale [38 Cases]	
Jacobson Stores	MI ED	1/15/2002	No Sales	Jacobson Stores attempts to sell itself in bankruptcy but is unable to find a buyer. There are no other asset sales during the case. Without a buyer, Jacobson's operations are discontinued and a liquidating plan is confirmed.
Trico Marine Services	DE	8/25/2010	Sale of Other Assets	Substantially all of Trico Marine's assets are sold in piecemeal sales. There are nine different sales of marine vessels that raise $66 million in total proceeds. Sale proceeds are distributed under a liquidating plan.
Finlay Enterprises	NY SD	8/5/2009	Sale of Other Assets	Substantially all of Finlay's assets are sold to Gordon Brothers (a liquidator) for $116 million in cash. Competing bids increase the price from Gordon Brother's initial stalking horse offer of $105.5 million. Sale proceeds to creditors are distributed under a liquidating plan.
Logix Communications	TX SD	2/28/2002	Sale of Business Division	A portion of Logix's operating assets are sold to an investor group for $24 million in cash. With the sale, the Logix name and most of its 350 employees are moved to a newly formed company. The value of the assets not included in the sale and the proceeds from the sale are distributed to creditors under a liquidating plan.
FLYi	DE	11/7/2005	Sale of Other Assets	FLYi sells some of its gates to Northwest (a competing airline) for $2 million in cash. Subsequently, the airline discontinues its operations. Proceeds are distributed under a liquidating plan.
Crown Pacific	AZ	6/29/2003	Sale of Other Assets	Crown Pacific sells sawmill assets to International Forest Products for $74 million ($57 million in cash and $17 million in assumed liabilities). The court approves a plan to liquidate the remaining assets, which include an arrangement to transfer land assets to Cascade Timberlands (a company owned by Crown's creditors).

Table A-3
Correlations Between Pre-Petition Firm Characteristics

This table presents pair-wise correlations between firm characteristics used in the main empirical analysis. The variables are defined in Appendix Table A-1 and are dated at the time of the bankruptcy filing or in the second year prior to the bankruptcy filing (where [t-1] is noted next to the explanatory variable).

Firm Characteristic	*Secured Debt Ratio*	*EBITDA / Assets [t-1]*	*EBITDA Volatility [t-1]*	*Book Leverage [t-1]*	*PP&E /Total Assets [t-1]*	*Non-cash Current/ Total Assets [t-1]*	*Cash / Total Assets [t-1]*	*Log of Book Assets [t-1]*	*Sales Growth [t-1]*
Secured Debt Ratio	1.000								
EBITDA to Assets [t-1]	0.047	1.000							
EBITDA Volatility [t-1]	0.027	0.034	1.000						
Book Leverage [t-1]	-0.022	0.368	0.369	1.000					
PP&E / Total Assets [t-1]	0.013	0.082	-0.032	0.086	1.000				
Non-cash Current / Total Assets [t-1]	0.199	0.162	-0.004	-0.083	-0.403	1.000			
Cash / Total Assets [t-1]	-0.202	-0.465	0.168	-0.113	-0.085	-0.312	1.000		
Log of Book Assets [t-1]	-0.127	0.068	-0.178	-0.191	0.073	-0.214	-0.022	1.000	
Sales Growth [t-1]	-0.073	-0.265	0.196	-0.117	0.022	-0.257	0.349	0.070	1.000

Table A-4
C&I Spread: Asset Sales and Bankruptcy Resolution Outcomes

This table reproduces the analyses in Tables 4 and 5, replacing the *B-BBB Spread* variable with the *C&I Spread* variable. In Panel A, coefficients from the probit regressions are reported as marginal probabilities, evaluated at the sample means. In Panel B, coefficients from the multinomial logit regressions are reported as relative risk ratios, interpreted as the increase in probability of the given outcome divided by increase in probability of a reorganization for a unit change in the independent variable. Continuous variables are de-meaned and normalized by their standard deviation. The independent variables are defined in Appendix Table A-1 and are dated at the time of the bankruptcy filing or in the second year prior to the bankruptcy filing (where [t-1] is noted next to the explanatory variable). Asterisks next to the coefficients denote statistical significance with heteroskedasticity-robust standard errors and clustering by year of filing: *** denotes a 1 percent significance level, ** denotes a 5 percent significance level, and * denotes a 10 percent significance level. We report the corresponding z-statistics in parentheses below each of the main coefficients.

	Incidence of Sales		Magnitude of Sales		Bankruptcy Resolution Type [Multi-Logit]			
	1 = 363 Asset Sale		*Sale Proceeds to Assets*		*Going Concern Sold*		*Liquidated / Sold Piecemeal*	
Explanatory Variables	[1]	[2]	[3]	[4]	[5]	[6]	[5]	[6]
Secured Debt Ratio	**0.056*** **	**0.046*** **	**0.055** **	**0.072*** **	**1.353*** **	**1.451*** **	**1.027**	**1.087**
	(4.196)	(3.818)	(2.194)	(3.075)	(2.649)	(3.745)	(0.221)	(0.707)
C&I Spread	**-0.069**	**-0.049**	**0.059**	**0.088**	**0.765**	**0.811**	**0.860**	**0.942**
	(-1.617)	(-1.575)	(1.236)	(1.585)	(-0.826)	(-0.560)	(-0.454)	(-0.167)
Negative Shock (Industry)	**-0.074**	**-0.059**	**-0.017**	**0.011**	**0.946**	**1.160**	**1.868**	**2.465***
	(-1.213)	(-1.232)	(-0.159)	(0.114)	(-0.090)	(0.269)	(1.508)	(1.849)
Positive Shock (Industry)	**-0.056**	**-0.033**	**-0.025**	**0.003**	**1.171**	**1.363**	**0.925**	**1.095**
	(-1.027)	(-0.743)	(-0.567)	(0.083)	(0.341)	(0.632)	(-0.111)	(0.134)
*Neg. Shock (Ind) * (C&I Spread)*	**0.199*** **	**0.164*** **	**-0.011**	**0.015**	**2.210** **	**3.205*** **	**1.561**	**1.987***
	(4.158)	(4.470)	(-0.148)	(0.253)	(2.486)	(3.068)	(1.487)	(1.727)
*Pos. Shock (Ind) * (C&I Spread)*	**0.168*** **	**0.145*** **	**0.035**	**0.065***	**2.875*** **	**4.367*** **	**2.552**	**3.257**
	(2.701)	(3.148)	(0.766)	(1.734)	(3.382)	(4.149)	(1.244)	(1.501)
Industry Financial Dependence		**0.040**		**0.211** **		**1.641*** **		**1.303**
		(1.219)		(2.566)		(2.950)		(0.690)
*Ind. Financial Dep. * (C&I Spread)*		**0.042**		**0.143*** **		**2.388*** **		**2.555*** **
		(1.179)		(2.737)		(3.082)		(4.253)
Industry Concentration (HHI)		**-0.043**		**0.092** **		**0.918**		**1.618**
		(-0.975)		(2.066)		(-0.746)		(1.281)
*Neg. Shock (Ind) * HHI*		**-0.039**		**-0.037***		**0.782**		**0.651**
		(-1.573)		(-1.756)		(-0.919)		(-0.900)
*Pos. Shock (Ind) * HHI*		**0.031**		**-0.043**		**1.430**		**0.783**
		(0.494)		(-0.797)		(1.441)		(-0.472)
Defined Benefit Pension	**-0.030**	**-0.014**	**0.085** **	**0.092** **	**0.907**	**0.909**	**1.229**	**1.252**
Court Busyness	**-0.005**	**0.000**	**0.001**	**0.005**	**1.069**	**1.142**	**0.774**	**0.806**
Industry Market to Book	**-0.009**	**-0.007**	**0.064** **	**0.078*** **	**1.330**	**1.360**	**0.748**	**0.822**
EBITDA / Assets [t-1]	**-0.013**	**-0.012**	**0.067**	**0.065**	**1.044**	**0.985**	**0.867**	**0.761**
Book Leverage [t-1]	**-0.142***	**-0.119***	**-0.131** **	**-0.135** **	**0.419*** **	**0.344*** **	**0.553*** **	**0.514** **
Sales Growth [t-1]	**-0.017**	**-0.010**	**0.002**	**-0.009**	**0.839***	**0.814** **	**0.899**	**0.864**
Log of Book Assets [t-1]	**0.066*** **	**0.048*** **	**0.042**	**0.045**	**0.787**	**0.761**	**0.452*** **	**0.482*** **
Non-cash Current Assets / Assets [t-1]	**0.058**	**0.037**	**0.052** **	**0.032**	**1.450** **	**1.248**	**1.668**	**1.509**
Cash Holdings / Assets [t-1]	**0.016**	**0.014**	**0.045**	**0.046**	**1.408** **	**1.351** **	**1.519***	**1.476**
PP&E / Assets [t-1]	**-0.077*** **	**-0.067*** **	**-0.015**	**-0.036**	**0.798**	**0.616** **	**1.103**	**0.998**
Industry Effects [F-F 49]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Court and Pre-Pack Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	350	350	350	350	350	350	350	350
Unconditional Probability	0.323	0.323	-	-	0.214	0.214	0.109	0.109
Pseudo R-Squared	0.418	0.425	0.307	0.307	0.279	0.310	0.279	0.310

Table A-5
Description of Industry Shock Variable

This table summarizes the industry shock variable used in the main empirical analysis. The negative (positive) industry shock variable is an indicator that the firm's industry median sales growth or cumulative stock return for the year prior to filing are in the lowest (highest) sample quartile and neither variable is in the highest (lowest) sample quartile. Percentages sum to 100 percent across each row. Panel A breaks out the industry shocks according to the year of filing. Panel B shows the distribution of shocks by industry where there are at least five cases in the sample. The industries are sorted by the number of total filings in descending order.

		Negative Shock		*Positive Shock*		*No Shock*	
		Count	*Percent*	*Count*	*Percent*	*Count*	*Percent*
All Filings	**350**	**118**	**33.7%**	**113**	**32.3%**	**119**	**34.0%**
Panel A: Industry Shocks by Year of Filing							
2002	85	45	52.9%	10	11.8%	30	35.3%
2003	59	3	5.1%	33	55.9%	23	39.0%
2004	31	0	0.0%	28	90.3%	3	9.7%
2005	23	1	4.4%	8	34.8%	14	60.9%
2006	17	2	11.8%	7	41.2%	8	47.1%
2007	10	0	0.0%	3	30.0%	7	70.0%
2008	27	13	48.2%	2	7.4%	12	44.4%
2009	66	54	81.8%	6	9.1%	6	9.1%
2010	17	0	0.0%	8	47.1%	9	52.9%
2011	15	0	0.0%	8	53.3%	7	46.7%
Panel B: Industry Shocks by Industry							
Communications	51	25	49.0%	16	31.4%	10	19.6%
Retail	27	8	29.6%	8	29.6%	11	40.7%
Steel	21	7	33.3%	11	52.4%	3	14.3%
Transportation	21	1	4.8%	7	33.3%	13	61.9%
Automotive	17	7	41.2%	3	17.7%	7	41.2%
Entertainment	13	4	30.8%	2	15.4%	7	53.9%
Rubber & Plastic	13	3	23.1%	7	53.9%	3	23.1%
Oil & Gas	12	8	66.7%	2	16.7%	2	16.7%
Chemicals	11	5	45.5%	6	54.6%	0	0.0%
Business Services	11	4	36.4%	1	9.1%	6	54.6%
Paper & Office Supplies	10	6	60.0%	3	30.0%	1	10.0%
Textiles	9	0	0.0%	6	66.7%	3	33.3%
Hotel & Restaurant	9	0	0.0%	6	66.7%	3	33.3%
Food & Grocery	8	0	0.0%	4	50.0%	4	50.0%
Apparel	8	3	37.5%	3	37.5%	2	25.0%
Machinery	8	3	37.5%	2	25.0%	3	37.5%
Printing & Publishing	7	5	71.4%	1	14.3%	1	14.3%
Household Products	7	2	28.6%	1	14.3%	4	57.1%
Building Materials	7	1	14.3%	2	28.6%	4	57.1%
Construction	7	4	57.1%	2	28.6%	1	14.3%
Utilities	7	2	28.6%	2	28.6%	3	42.9%
Software	7	2	28.6%	1	14.3%	4	57.1%
Wholesale	7	2	28.6%	3	42.9%	2	28.6%
Fabricated Products	6	1	16.7%	5	83.3%	0	0.0%
Electrical	6	3	50.0%	1	16.7%	2	33.3%
Personal Services	6	0	0.0%	0	0.0%	6	100.0%
Electronics	5	3	60.0%	2	40.0%	0	0.0%

Table A-6
Alternative Definitions of Liquidation

This table reports probit regressions for two alternative definitions of a liquidation outcome. Coefficients are reported as marginal probabilities evaluated at the sample means. Continuous variables are de-meaned and normalized by their standard deviation. The independent variables are defined in Appendix Table A-1 and are dated at the time of the bankruptcy filing or in the second year prior to the bankruptcy filing (where "[t-1]" is noted next to the explanatory variable). ***, **, and * denote statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively, using heteroskedasticity-robust standard errors and clustering by year of filing. Z-statistics are reported in parentheses.

	Incidence of Liquidation [Probit]					
	1 = Liquidation or Piecemeal Sale, or Sale of All Assets			*1 = Liquidation or Piecemeal Sale*		
Explanatory Variables	[1]	[2]	[3]	[4]	[5]	[6]
Secured Debt Ratio	**0.045*** **	**0.099*** **	**0.076*** **	**-0.013**	**-0.002**	**-0.003**
	(2.614)	(4.901)	(3.052)	(-0.921)	(-0.268)	(-0.344)
Industry Market to Book	**0.003**	**-0.059***	**-0.044**	**-0.038**	**-0.057** **	**-0.049*** **
	(0.067)	(-1.697)	(-0.890)	(-0.844)	(-2.456)	(-2.628)
Industry Concentration (HHI)	**0.008**	**0.066**	**0.041**	**0.011**	**0.000**	**-0.006**
	(0.330)	(1.524)	(0.604)	(0.547)	(0.025)	(-0.461)
Industry Financial Dependence	**0.019**	**0.072**	**0.055**	**-0.046**	**0.082**	**0.061**
	(0.531)	(1.384)	(1.471)	(-1.022)	(1.599)	(1.527)
Negative Shock (Industry)	**-0.060**	**0.053**	**0.078**	**0.033**	**0.019**	**0.009**
	(-1.057)	(0.579)	(1.033)	(0.866)	(0.956)	(0.568)
Positive Shock (Industry)	**0.056**	**0.071**	**0.084**	**-0.009**	**0.024**	**0.021**
	(0.582)	(0.582)	(0.912)	(-0.131)	(0.598)	(0.669)
B - BBB Spread		**0.050**	**-0.079**		**-0.005**	**-0.013**
		(1.595)	(-1.476)		(-0.447)	(-1.056)
*HHI * (B - BBB Spread)*			**0.040**			**0.003**
			(0.933)			(0.396)
*Ind. Financial Dep. * (B - BBB Spread)*			**0.028**			**-0.025**
			(1.118)			(-1.517)
*Neg. Shock (Ind) * (B - BBB Spread)*			**0.184** **			**0.003**
			(2.415)			(0.266)
*Pos. Shock (Ind) * (B - BBB Spread)*			**0.308*** **			**0.014**
			(3.141)			(0.605)
Defined Benefit Pension	**-0.020**	**0.021**	**-0.006**	**-0.030**	**-0.008**	**-0.008**
	(-0.387)	(0.422)	(-0.105)	(-0.441)	(-0.263)	(-0.323)
Court Busyness	**-0.047**	**-0.002**	**0.002**	**-0.043***	**-0.003**	**-0.003**
	(-1.139)	(-0.049)	(0.047)	(-1.921)	(-0.496)	(-0.666)
EBITDA to Assets [t-1]	**-0.016**	**-0.014**	**-0.014**	**-0.021**	**-0.018**	**-0.015**
EBITDA Volatility [t-1]	**0.059**	**0.058**	**0.060**	**0.031**	**0.011***	**0.011** **
Book Leverage [t-1]	**-0.129*** **	**-0.200*** **	**-0.206*** **	**-0.040**	**-0.019***	**-0.016***
PP&E / Assets [t-1]	**-0.039**	**-0.057***	**-0.064***	**0.028**	**0.013***	**0.011***
Non-cash Current Assets / Assets [t-1]	**0.049**	**0.112*** **	**0.122*** **	**0.038**	**0.025**	**0.020**
Cash Holdings / Assets [t-1]	**0.059** **	**0.110*** **	**0.108*** **	**0.028**	**0.014**	**0.010**
Log of Book Assets [t-1]	**-0.055***	**-0.060***	**-0.065***	**-0.065*** **	**-0.033*** **	**-0.027*** **
Sales Growth [t-1]	**-0.048** **	**-0.048**	**-0.058**	**-0.020**	**-0.008**	**-0.008**
Industry Effects [F-F 49]	Yes	Yes	Yes	Yes	Yes	Yes
Court and Pre-Pack Effects	Yes	Yes	Yes	Yes	Yes	Yes
N	350	350	350	350	350	350
Unconditional Probability	0.323	0.323	0.323	0.109	0.109	0.109
Pseudo R-Squared	0.288	0.398	0.418	0.214	0.348	0.358

Table A-7
Alternative Measures of Creditor Control

This table reports probit regressions for the incidence asset sales and bankruptcy outcome on alternative proxies for senior creditor control. The dependent and independent variables are defined in Appendix Table A-1 and are dated at the time of the bankruptcy filing or in the second year prior to the bankruptcy filing (where "[t-1]" is noted next to the explanatory variable). Coefficients from the probit regressions are reported as marginal probabilities, evaluated at the sample means. Continuous variables are de-meaned and normalized by their standard deviation. Asterisks next to the coefficients denote statistical significance with heteroskedasticity-robust standard errors and clustering by year of filing: *** denotes a 1 percent significance level, ** denotes a 5 percent significance level, and * denotes a 10 percent significance level. We report the corresponding z-statistics in parentheses below each of the main coefficients.

	Incidence of Asset Sales and Bankruptcy Outcome [Probit]							
	1 = 363 Asset Sale				*1 = Sale of All Assets as Going Concern*			
Explanatory Variables	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
≥ 50% Secured [Filing]	**0.021**	**0.340****	**0.329*****	**0.150*****	**0.142*****	**0.031*****	**0.006****	**0.099***
	(0.212)	(2.498)	(3.211)	(2.685)	(3.422)	(3.113)	(2.573)	(1.659)
Has DIP Financing	**-0.079**				**-0.067**			
	(-1.470)				(-0.989)			
Has DIP x ≥ 50% Secured	**0.098**				**-0.066**			
	(0.908)				(-1.493)			
Pre-petition Rollup		**0.278****				**0.023*****		
		(2.563)				(4.314)		
Pre-pet. Rollup x ≥ 50% Secured		**-0.296**				**-0.043*****		
		(-1.312)				(-2.859)		
Milestone for Plan or Sale			**0.506****				**0.119*****	
			(2.252)				(3.241)	
Milestone x ≥ 50% Secured			**-0.311**				**-0.006*****	
			(-1.599)				(-3.253)	
≥ 50% Non-Bank Lenders [DIP]				**-0.188*****				**-0.157*****
				(-2.923)				(-2.775)
≥ 50% Non-Bank x ≥ 50% Secured				**0.120**				**0.140**
				(1.162)				(0.860)
Industry Effects [F-F 49]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year of Filing Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm and Case Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Excluding Liq./Piecemeal Sales	No	No	No	No	Yes	Yes	Yes	Yes
N	350	233	206	248	312	210	185	225
Pseudo R-Squared	0.407	0.479	0.491	0.475	0.486	0.520	0.561	0.502