

## **Creditor Control and Conflict in Chapter 11**

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First draft: March 23, 2007

This draft: April 18, 2008

### **Abstract**

We analyze a sample of large privately and publicly held businesses that filed Chapter 11 bankruptcy petitions during 2001. We find that creditor control is pervasive. In contrast to the traditional view of Chapter 11, equityholders and managers exercise little or no leverage during the reorganization process. Seventy percent of CEOs are replaced in the two years before a bankruptcy filing, and very few reorganization plans (at most six percent) deviate from the absolute priority rule in order to distribute value to equityholders. In sharp contrast, creditors dictate the dynamics of the reorganization process. Senior lenders exercise significant control through stringent covenants contained in DIP loans, such as line-item budgets. Unsecured creditors gain leverage through objections and other court motions. We also find that bargaining between secured and unsecured creditors can distort the reorganization process. A Chapter 11 case is significantly more likely to result in a sale if secured lenders are oversecured, consistent with a secured creditor-driven fire-sale bias. It is much less likely when these lenders are undersecured or when the firm has no secured debt at all. Our results suggest that the advent of creditor control has not eliminated the fundamental inefficiency of the bankruptcy process: resource allocation questions (whether to sell or reorganize a firm) are ultimately confounded with distributional questions (how much each creditor will receive), due to conflict among creditor classes.

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<sup>†</sup> Northwestern University School of Law and Columbia Law School, respectively. We received helpful comments from Barry Adler, John Armour, Jesse Fried, Juliet Kostritsky, Robert Rasmussen, and James Spindler, from workshop participants at Case Western, Columbia, Northwestern, Oxford, University of Pennsylvania, and University of Southern California, and from participants at the following conferences: Conference on Commercial Law Realities (Univ. Texas), Conference on Empirical Legal Studies (NYU), Triangle Law and Economics Conference (Duke/Univ. North Carolina), and Workshop on Private and Public Resolution of Financial Distress (Vienna Graduate School of Finance). We thank Charles Alivosetti, Ariana Cooper, James Judah, Zeev Kirsh, Christopher Mellem, Christina Schutz, Jeong Song, and Robert Tennenbaum for superb research assistance.

The traditional view of Chapter 11 reorganization has two major themes. First, managers or equity holders, or both, control the reorganization process.<sup>1</sup> This is made possible by debtor-friendly features of the U.S. Bankruptcy Code and judges who are passive or biased in favor of continuation. In using the court's protection, managers can entrench themselves and equity holders can extract concessions from creditors in the form of deviations from absolute priority. As a result, courts may permit reorganizations of firms that should liquidate. The second theme, usually implicit in the literature, is that creditors act as a unified constituency, usually in agitating for a quick liquidation. Together, these traditional themes continue to influence the academic literature in many areas related to financial distress.<sup>2</sup>

A recent wave of literature by academics<sup>3</sup> and practitioners<sup>4</sup> suggests that

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<sup>1</sup> Classic references are Michael Bradley and Michael Rosenzweig, *The Untenable Case for Chapter 11*, 101 Yale L.J. 1043 (1992); Lucian Arye Bebchuk and Howard F. Chang, *Bargaining and the Division of Value in Corporate Reorganizations*, 8 J. L. Econ. & Org. 253 (1992); Alan Schwartz, *A Contract Theory Approach to Business Bankruptcy*, 107 Yale L.J. 127, 183 n.60 (1997) ("It is widely believed that debtor firms use their power to run their businesses and to control the reorganization agendas to capture portions of the value that creditors are legally entitled to receive."); Barry E. Adler, *Financial and Political Theories of American Corporate Bankruptcy*, 45 Stan. L. Rev. 311, 315-16 (1993) ("Typically, the firm's prebankruptcy managers—agents of the equity investors and often equity investors themselves—control both the firm and the reorganization process.")

<sup>2</sup> Recent examples include Viral Acharya, Kose John, and Rangarajan Sundaram, "Cross-Country Variations in Capital Structure: The Role of Bankruptcy Codes," working paper (October 1, 2005) (comparing the "equity-friendly" U.S. system and the "creditor-friendly" U.K. system). Structural models used in bond pricing typically assume a single class of debt, with shareholders extracting surplus from the creditor in workouts or in bankruptcy. See Pascal Francois and Erwan Morellec, *Capital Structure and Asset Prices: Some Effects of Bankruptcy Procedures*, 77 J. Bus. 377 (2004); Mark Broadie, Mikhail Chernov, and Suresh Sundaresan, *Optimal Debt and Equity Values in the Presence of Chapter 7 and Chapter 11* J. Fin (forthcoming 2007) (modeling conflict between equityholders and a single creditor in bankruptcy, but analyzing both equity and creditor control).

<sup>3</sup> Douglas G. Baird and Robert K. Rasmussen, *The End of Bankruptcy*, 55 Stan. L. Rev. 751 (2002); David Skeel, *Creditor's Ball: The "New" New Corporate Governance in Chapter 11*, 152 U. Penn. L. Rev. 917 (2003); Elizabeth Warren and Jay Westbrook, *Secured Party in Possession*, 2003 Am. Bankr. Inst. J. 150 (Sept. 2003); Barry E. Adler, Vedran Capkun, and

these themes—at least in large company bankruptcies—are outdated. During the past decade, creditors with senior, secured claims have come to dominate the Chapter 11 process. Much of this *creditor control* is exercised through pre- and post-petition secured lines of credit, which limit the debtor’s access to cash and impose strict requirements on business activity.<sup>5</sup> Because of this control, it is argued, we have seen a dramatic increase in the proportion of Chapter 11 cases that result in piece-meal liquidation or a going-concern sale.<sup>6</sup> Among large, publicly-traded firms in Chapter 11, going-concern sales accounted for less than twenty percent of cases filed during the 1980s.<sup>7</sup> In 2002, they accounted for about seventy-five percent of the cases.<sup>8</sup>

In addition to shifting the focus away from equity and managerial control in Chapter 11, the recent literature also directs attention away from the unified, single-creditor framework. The onset of senior, secured creditor control raises issues of potential *creditor conflict* between senior and junior classes of debt. As senior lenders have obtained control through pre- and post-petition financing, junior lenders have used claims trading, committees, and other tactics to gain leverage over the reorganization process.<sup>9</sup> Junior lender activism has increased as hedge funds and other investors have purchased the claims of bondholders and

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Lawrence A. Weiss, “Destruction of Value in the New Era of Chapter 11,” working paper (Sept. 9, 2005).

<sup>4</sup> Harvey R. Miller and Shay Y. Waisman, *Does Chapter 11 Reorganization Remain a Viable Option for Distressed Businesses For the Twenty-First Century?*, 78 Am. Bankr. L. J. 153 (2004).

<sup>5</sup> David A. Skeel, *The Past, Present and Future of Debtor-in-Possession Financing*, 25 Card. L. Rev. 1905 (2004); Douglas G. Baird and Robert K. Rasmussen, *Private Debt and the Missing Lever of Corporate Governance*, 154 U. Penn. L. Rev. 1209 (2006).

<sup>6</sup> Douglas G. Baird and Robert K. Rasmussen, *Chapter 11 at Twilight*, 56 Stan. L. Rev. 673 (2003). See also Lynn LoPucki, *The Nature of the Bankrupt Firm: A Response to Baird and Rasmussen’s The End of Bankruptcy*, 56 Stan. L. Rev. 645 (2003) (noting the dramatic increase in sales, but questioning inferences drawn by Baird and Rasmussen).

<sup>7</sup> LoPucki, *supra*, at 648.

<sup>8</sup> *Id.*

<sup>9</sup> Chaim J. Fortgang and Thomas M. Mayer, *Trading Claims and Taking Control of Corporations in Chapter 11*, 12 Cardozo L. Rev. 1 (1990); Frederick Tung, *Confirmation and Claims Trading*, 90 Nw. L. Rev. 1684 (1996); Frank Partnoy and David Skeel, *The Promise and Perils of Credit Derivatives*, — U. Cinn. L. Rev. — (2007).

similarly dispersed creditors who, in the past, did not participate actively in the bankruptcy process.<sup>10</sup>

Our paper has two main objectives. The first is to provide systematic evidence on the validity of these new themes—creditor control and creditor conflict—in large, corporate Chapter 11 cases. Most of the existing evidence is anecdotal, raising doubts whether a new perspective on the bankruptcy process is necessary. Our second objective is to identify the effects of creditor control and conflict on bankruptcy outcomes, such as the decision to reorganize or sell the firm. Prior theoretical literature shows that manager-creditor and equity-creditor conflict can lead to asset misallocation during the reorganization process. We use our database to investigate whether a different kind of conflict—senior creditors versus junior creditors—distorts outcomes in bankruptcy cases.

We investigate these questions using a unique database of Chapter 11 filings by large publicly-traded and privately-held corporations. A preliminary examination of our data provides strong evidence that the traditional view of Chapter 11 is indeed outdated. The traditional paradigms—managers vs. creditors and equityholders vs. creditors—no longer characterize the key tensions in large corporate reorganizations. We find that 70 percent of CEOs are replaced within two years of the bankruptcy filing. This represents a sharp increase over comparable figures reported in past studies and suggests strongly that Chapter 11 does not provide a safe harbor for entrenched managers. Additionally, we find that very few reorganization plans (at most six percent) deviate from the absolute priority rule in order to distribute value to equity holders. In eighty-two percent of the confirmed reorganization plans, equity holders received nothing.

We also find strong evidence that senior creditors obtain substantial control through their loan agreements with distressed debtors. Seventy-five percent of the bankrupt corporations obtained senior secured financing prior to entering bankruptcy. Ninety percent of these loans were secured by a lien on all of the corporation's assets. After entering bankruptcy, the debtor corporations

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<sup>10</sup> Paul M. Goldschmid, Note, *More Phoenix than Vulture: The Case for Distressed Investor Presence in the Bankruptcy Reorganization Process*, 2005 Colum. L. Rev. 191 (2005); Eric B. Fisher and Andrew L. Buck, *Hedge Funds and the Changing Face of Corporate Bankruptcy Practice*, 25 Am. Bankr. Inst. J. 24 (Dec./Jan. 2007).

obtained post-petition financing in seventy-six percent of the cases. These too were secured by liens on all of the firm's assets. More importantly, the vast majority of the loans contained covenants imposing line-item budgets, profitability targets, or deadlines for submitting a plan of reorganization. The lender was generally free to seize collateral unilaterally—without first seeking court approval—if the corporation violated any of these covenants.

Although senior secured lenders appear to exert significant control through loan documents, we also find evidence of frequent creditor conflict. Junior creditors, acting through an unsecured creditors committee, filed objections in over 50 percent of the cases. Senior creditors too often filed objections. In 46 percent of the cases, pre- or post-petition lenders objected to actions proposed or taken by the corporations' managers.

Finally, our analysis shows that creditor conflict has an important effect on bankruptcy outcomes. We find a statistically significant, non-monotonic relationship between the ratio of secured debt-to-assets and the resolution of the case. When secured creditors are undersecured (their claims exceed the value of the firm's assets, making them the approximate residual claimants) and when there is no secured debt at all (making the unsecured creditors the approximate residual claimants), the cases are longer and are more likely to result in a traditional reorganization. This is consistent with the idea that, in the absence of conflict, creditors value the reorganization process as a means of alleviating liquidity problems.<sup>11</sup>

But when secured creditors are oversecured (their claims are worth less than the value of the firm's assets), we expect to see—and do see—a different pattern. In these cases, theory predicts that creditor conflict is likely to be most pronounced. Oversecured creditors will prefer an immediate resolution: their claims may be paid in full during a quick sale, even if the firm is sold for less than its fundamental value; delay could hurt them if firm value is volatile and deteriorates over time. Unsecured creditors, on the other hand, will prefer a reorganization if it lengthens the case. If firm value improves over time, these creditors keep most of the upside; if value declines, they share any losses with

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<sup>11</sup> See Andrei Shleifer and Robert W. Vishny, *Liquidation Values and Debt Capacity: A Market Equilibrium Approach*, 47 J. Fin. 1343 (1992); Robert Gertner and Randal C. Picker, *Bankruptcy and the Allocation of Control*, working paper (Feb. 1992).

senior creditors. Consistent with this theory, we find that cases are significantly shorter and more likely to result in a sale when secured creditors are oversecured than when the firm has no secured debt or has an approximate residual claimant, such as an undersecured creditor. These results support the hypothesis that senior creditors have substantial power to control bankruptcy outcomes and that they exercise this power more vigilantly when delay poses a greater risk to the value of their claims.

Our paper is organized as follows. Section 1 reviews the prior literature, 2 describes our database, 3 presents summary statistics, and 4 presents simple measures of creditor control and conflict. In Section 5, we test the effects of control and conflict on the reorganization process. Section 6 concludes.

## 1. Prior Literature

The phenomenon of creditor control has been the topic of numerous recent studies, some of them empirical.<sup>12</sup> The dynamics of creditor conflict has received comparatively less attention.

With respect to creditor control, several papers have documented the frequency of DIP financing during the 1990s. In a study of publicly-traded firms that entered Chapter 11 between 1988 and 1997, Dahiya, *et al.*,<sup>13</sup> found DIP financing in thirty-one percent of the cases, with the percentage rising to forty-eight in the mid-1990s. Carapeto,<sup>14</sup> in a similar study, observed DIP financing in forty-one percent of cases, with the percentage rising to a high of sixty-seven in 1996.<sup>15</sup> Both studies found DIP financing more common among larger firms and

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<sup>12</sup> See, e.g., Stuart C. Gilson and Michael R. Vetsuypens, *Creditor Control in Financially Distressed Firms: Empirical Evidence*, 72 Wash. U. L. Q. 1005 (1994).

<sup>13</sup> Sandeep Dahiya, Kose John, Manju Puri, and Gabriel Ramirez, *Debtor-in-Possession Financing and Bankruptcy Resolution: Empirical Evidence*, 69 J. Fin. Econ. 259 (2003).

<sup>14</sup> Maria Carapeto, "Does Debtor-in-Possession Financing Add Value?", working paper (Oct. 6, 2003).

<sup>15</sup> Other studies include Fayez A. Elayan and Thomas O. Meyer, *The Impact of Receiving Debtor-in-Possession Financing on the Probability of Successful Emergence and Time Spent under Chapter 11 Bankruptcy*, 28 J. Bus. Fin. & Acctg. 905 (2001); Sris Chatterjee, Upinder S. Dhillon and Gabriel G. Ramirez, *Debtor-in-Possession Financing*, 28 J. Bank. & Fin. 3097 (2004); Upinder S. Dhillon, Thomas Noe, and Gabriel Ramirez, "Debtor-in-Possession

less common in prepackaged bankruptcies. They also report that, relative to debtors without DIP financing, those with financing had faster cases and were more likely to reorganize or merge with another firm than liquidate under Chapter 7. Carapeto, however, also found that the probability of liquidation was higher when the DIP loan gave the lender a priming lien.

These papers are important, but they tell us little about the terms of DIP financing and why it is an effective tool of creditor control. Carapeto addresses this issue in part, showing that one characteristic of DIP financing—whether the lender receives a priming lien—has an important effect on outcomes. We do not know, however, whether other characteristics of DIP financing matter as well.<sup>16</sup>

The closest papers to ours in this respect are contemporaneous working papers by Bharath, et al.<sup>17</sup> and McGlaun.<sup>18</sup> Bharath, et al. investigate the determinants of absolute priority rule (APR) violations. An APR violation occurs when a reorganization plan distributes value to junior interests even though senior interests have not been paid in full. An APR violation can be viewed as evidence of manager or equityholder control. Similar to our study, Bharath, et al. find that APR violations are less common during the early 2000s than they were during the 1980s. They hypothesize—and present supporting evidence—that APR violations declined during the 1990s and 2000s because creditors exercised greater control, via DIP financing and other tools, during the same period.

McGlaun uses bankruptcy court data (from PACER) to document covenants in senior loan agreements and investigate the influence of senior lenders on bankruptcy outcomes. He finds, similar to this study, a relationship between the senior debt-to-assets ratio and the time to case disposition that is

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Financing and the Resolution of Uncertainty in Chapter 11 Reorganizations,” working paper (1996).

<sup>16</sup> Chatterjee, *et al.*, *supra*, catalogue the covenants in DIP loans to publicly-traded corporations that filed Chapter 11 petitions between 1988 and 1997. Although they compare these covenants to those in other credit agreements, the authors do not assess the effect of these covenants on bankruptcy outcomes.

<sup>17</sup> Sreedhar T. Bharath, Venky Panchapegasan, & Ingrid Werner, “The Changing Nature of Chapter 11,” working paper (Univ. Michigan 2007).

<sup>18</sup> Greg McGlaun, “Lender Control in Chapter 11: Empirical Evidence,” working paper (Univ. Rochester 2007).

consistent with a desire among senior creditors to resolve cases more quickly when their claims are more at risk. But McGlaun does not find the statistically significant, non-monotonic relationship we document below.

CEO turnover has also received attention as a measure of creditor control. Carapeto finds that CEO turnover is higher among firms that receive DIP financing, consistent with the notion of creditor control.<sup>19</sup> Bharath et al., find that turnover rates in bankruptcy increased sixty-five percent between 1990 and the early 2000s.<sup>20</sup> Among entrenched managers—those with significant equity holdings—the turnover rate rose over two hundred percent, a change they attribute to increased creditor control during the same period.<sup>21</sup>

Several scholars have examined CEO turnover preceding a bankruptcy filing. Bernstein finds high levels of turnover in bankruptcy cases filed during 2001: among publicly-traded firms in bankruptcy, about forty-three percent of their CEO's were replaced within two years of the filing.<sup>22</sup> Oddly, this turnover rate is lower than rates estimated by other scholars using data on cases filed during the early 1980s, the heyday of management control. Gilson, for example, studied sixty-nine publicly-traded firms that entered Chapter 11 between 1979 and 1984 and estimated a turnover rate equal to fifty-five percent during the two years preceding the bankruptcy filing.<sup>23</sup> A similar rate, equal to fifty-three percent, can be derived from LoPucki and Whitford's study of the forty-three largest publicly-held corporations that filed Chapter 11 petitions between 1979 and 1988 and successfully reorganized.<sup>24</sup>

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<sup>19</sup> Carapeto, *supra*.

<sup>20</sup> Bharath, et al., *supra*, at 18.

<sup>21</sup> *Id.*, at 22.

<sup>22</sup> Ethan S. Bernstein, *All's Fair in Love, War & Bankruptcy? Corporate Governance Implications of CEO Turnover in Financial Distress*, 11 *Stan. J. L. Bus. & Fin.* 298 (2006).

<sup>23</sup> Stuart C. Gilson, *Management Turnover and Financial Distress*, 25 *J. Fin. Econ.* 241, 247 (1989).

<sup>24</sup> See Lynn M. LoPucki and William C. Whitford, *Corporate Governance in the Bankruptcy Reorganization of Large, Publicly Held Companies*, 141 *U. Penn. L. Rev.* 669, 723-36 (1993). We calculated this rate using the data reported in Table IV. The time window used by LoPucki and Whitford begins 18 months prior to the Chapter 11 filing, which is slightly shorter than that used by Gilson.

## 2. Data

We collected data on all corporate bankruptcies listed in the *Bankruptcy Datasource* “Public and Major Company Database” during the latter half of 2001.<sup>25</sup> This sample is attractive because it includes filings by both publicly-traded and privately-held firms. We chose the latter half of 2001 as our time period because data for earlier periods are highly incomplete.

Our sample includes 153 Chapter 11 and Chapter 7 filings. For each case, we gathered information about the parent company and all of its subsidiaries in bankruptcy. Our data sources were PACER, SEC filings, and the *Bankruptcy Datasource*. PACER is our primary resource. Every bankruptcy court maintains a PACER website, which contains the docket sheet for and, often, images of all documents filed in a bankruptcy case. Because document images were unavailable on a number of websites, our data are more complete for some cases than others. Indeed, we focused on cases filed during the second half of 2001 because the Bankruptcy Court for the District of Delaware began posting images in July 2001.

In most of the analysis that follows, we will rely on information contained in the court schedules, because they offer up-to-date information about the firm’s capital structure when it files, including data on secured debt. Comparable information is not available in SEC filings.

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Turnover rates rise dramatically, of course, when the window is extended to include post-petition events. LoPucki and Whitford, for example, estimate a turnover rate equal to 91% based on a window beginning 18 months prior to filing and ending 6 months after plan confirmation. *Id.*, at 723. Using a similar window—beginning 2 years prior to filing and ending at plan confirmation—Betker observed a turnover rate equal to 75% among a sample of 75 firms listed in the *Bankruptcy Datasource*. See Brian L. Betker, *Management’s Incentives, Equity’s Bargaining Power, and Deviations from Absolute Priority in Chapter 11 Bankruptcies*, 68 J. Bus. 161 (1995). See Betker for additional studies of CEO turnover in financial distressed firms.

<sup>25</sup> The list of firms is available at <http://www.bankruptcydata.com/findabrtop.asp>. This database includes bankruptcy filings by (i) all publicly-traded corporations and (ii) privately-held corporations that issued public debt or were “deemed significant or newsworthy.”

### 3. Summary Statistics

Tables 1 and 2 present summary information about the businesses and their experience in bankruptcy. We see a dramatic change in capital structure as firms approach bankruptcy. Table 1 presents statistics on the median firm's assets and debt holdings before entering bankruptcy. These statistics are based on data for publicly-held firms; the data are drawn from Compustat and SEC filings. In most cases, these data reflect the capital structure of a firm one or two years *before* the bankruptcy filing. The median firm reported assets worth between \$123 and \$151 million, debt of about \$112 million, and secured debt equal to \$6 million. The bankruptcy schedules present a very different capital structure: the median firm (publicly-traded or privately-held) reported assets worth \$66 million and secured debt of \$35.7 million. Thus, we see assets drop over sixty percent and secured debt rise nearly 600 percent during the one to two years preceding the bankruptcy filing.

Ninety percent of the firms entered bankruptcy with secured debt. Table 2 presents important variation in the value of secured debt relative to assets. In forty percent of the cases, the total value of secured claims was equal to less than fifty percent of asset value; in twenty-seven percent of the cases it ranged between fifty and 100 percent of asset value; and in twenty-three percent of the cases, secured claims exceeded the value of the company. In other words, secured creditors were *undersecured* in nearly a quarter of the cases. Roughly the same pattern emerges when we compare the claim held by the largest (or "dominant") secured creditor to the value of the firm's assets.

Table 3 presents information about the bankruptcy cases. Ninety-five percent of the cases were filed voluntarily by the debtors' owners. All but three percent of the cases were filed under Chapter 11.<sup>26</sup> Among these cases, nearly seventy-five percent resulted in a confirmed plan of reorganization; most of the remaining cases resulted in dismissal or conversion to Chapter 7. Because we do not have direct indicators of whether a plan was prepackaged, we assume that a

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<sup>26</sup> Bernstein reports the same percentage of involuntary filings in a study of Chapter 11 filings during 2001 by publicly-traded corporations. See Bernstein, *supra*, at 2 n.3.

case involved a prepack if confirmation occurred within four months.<sup>27</sup> Nine percent of the Chapter 11 cases were prepacks.

The third panel of Table 3 illustrates the frequency with which Chapter 11 cases resulted in the sale or liquidation of the business. Across all filings, sale or liquidation occurred in sixty-six percent of the cases. A traditional reorganization—in which the distressed firm’s creditors retain stakes in the firm and, often, become its new owners—occurred in thirty-two percent of the cases.

The final panel of Table 3 summarizes case duration. Across all Chapter 11 cases, the median duration to confirmation, dismissal, or conversion to Chapter 7 was thirteen months. This figure is somewhat misleading, however, because many plans are “liquidating plans” that merely distribute the proceeds from a going-concern sale that occurred months before. In these cases, the fate of the firm (whether it would be reorganized or sold off) was decided long before a plan was confirmed. The final panel of Table 3 illustrates this phenomenon. Although we do not have the dates on which sales occurred, we do have the dates when motions to conduct a sale were filed. Among firms that were sold off, a motion to sell the firm was typically filed within the first two to three months of the case. We are now gathering detailed data on the actual dates when sales occurred. We are finding, as expected, that sales occur much more quickly than traditional reorganizations.

#### **4. Simple Measures of Creditor Control and Conflict**

*Creditor Control.* We can measure creditor control directly and indirectly. Direct measures include the terms of postpetition DIP financing. An indirect measure is the frequency of management turnover immediately before and after the bankruptcy filing. When a firm is distressed, its creditors influence the choice of management. DIP loan covenants, for example, routinely include provisions forbidding the debtor from replacing a newly-appointed CEO.<sup>28</sup> Tables 3 and 4 present data on these measures of creditor control.

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<sup>27</sup> This cut-off captures all but two of the cases identified as “prenegotiated” in Lynn LoPucki’s WebBRD database. The two exceptions were cases with durations of 7 and 9 months, respectively.

<sup>28</sup> Chatterjee *et al.*, *supra*, at 3107, report that 95 percent of DIP loans contain covenants forbidding changes in management, control, and ownership.

Statistics on CEO turnover appear in Table 4, which shows that seventy percent of CEOs were replaced within two years of the bankruptcy filing. This turnover rate is markedly higher than the turnover (forty-five percent) among all Fortune 500 firms during a comparable two-year period (1999-2000).<sup>29</sup> It is also significantly higher than the rate (about fifty-five percent) observed among firms that entered bankruptcy during the 1980s. The frequency of turnover in our data rises further, to about eighty percent, when we include CEO replacements that occurred during the two years after the case commenced. This is undoubtedly an underestimate, however, because we did not look systematically for post-petition turnover. If CEO turnover is a good proxy for creditor control, these data point to pervasive control. At a minimum, it suggests strongly that managers are not able to use Chapter 11 as a safe harbor when their firms encounter financial distress.

Direct measures of creditor control appear in Table 5, which documents the frequency and terms of pre- and post-petition financing. Seventy-five percent of the businesses had obtained financing through a revolving pre-petition credit facility (PCF); ninety percent of these facilities were secured by all or nearly all of the firm's assets. Recall that we observe very low levels of secured debt among the firms in our sample when we study documents filed one or two years before their bankruptcy filings. It seems likely, then, that most PCFs originated during the year before the bankruptcies. This is a strong measure of senior creditor control. If all of a firm's assets are encumbered by liens, it cannot obtain additional secured financing in bankruptcy without obtaining permission from or offering adequate protection to the pre-petition secured lender.<sup>30</sup>

Upon entering bankruptcy, fifty percent of the firms obtained postpetition DIP financing. Another twenty-six percent obtained liquidity by filing motions to use cash collateral. These motions differ little from those for DIP financing; in either case, the debtor hopes to finance its operations using funds over which a lender has control. Indeed, cash collateral motions frequently contain the same terms found in motions for DIP financing. In over seventy-five percent of the

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<sup>29</sup> Steven N. Kaplan and Bernadette A. Minton, "How Has CEO Turnover Changed? Increasingly Performance Sensitive Boards and Increasingly Uneasy CEOs," NBER Working Paper No. 12465 (August 2006) (the 45 percent figure was computed based on Table 2; the average number of firms during 1999 and 2000 was 733; the total number of turnovers was 328, which is about 45 percent of 733).

<sup>30</sup> See 11 U.S.C. 364(c), (d).

cases, the firm obtained financing through a DIP loan or an order permitting it to use cash collateral. This, in turn, suggests that the providers of the firms' credit lines have substantial control over, at a minimum, the timing of the bankruptcy filings. These results are important, because they provide confirmation that a primary justification for the bankruptcy filing is the debtor's need to access cash that is not available outside bankruptcy.

There is significant variation in the firms that obtained DIP financing, as the third panel of Table 5 illustrates. Although the value of the median DIP loan equaled fourteen percent of the firm's unencumbered assets, many loans were made to firms with no unencumbered assets (hence the mean of -0.70 for "DIP Loan/Unencumbered Assets"). And a number of loans far exceeded the value of unencumbered assets (hence the maximum of 17.23 for "DIP Loan/Unencumbered Assets").

The fourth and fifth panels of Table 5 dissect the terms of DIP loans. Ninety-five percent of these loans give the lender administrative expense superpriority. This is a potent form of control because it gives the lender the right to demand repayment in cash before any plan of reorganization can be confirmed. Ninety-two percent of the loans give the lender a security interest in all of the firm's assets. This too is an important mechanism of control when combined with covenants permitting the lender to seize the collateral—without petitioning for court authorization—in the event of default. These covenants ("Automatic Stay Terminates in Event of Default") are present in ninety percent of DIP loans.

Other covenants enhance creditor control. Perhaps our most surprising result, and the strongest evidence of senior creditor control, is the large percentage of loans that impose specific line-item budgets on the firm (seventy-two percent of loans). These budgets obligate the firm to submit detailed evidence of cash receipts and expenditures; an event of default occurs if the firm deviates from any given line-item by a significant margin (usually five to fifteen percent). Other covenants are of the more standard variety and restrict capital expenditures (fifty-five percent) or require the firm to achieve certain profitability or EBITDA targets (forty-nine percent). Ninety percent of loans contained at least one of these provisions ("Any Financial Limits").

The fourth panel of Table 5 also shows that sixty-five percent of DIP loans contain provisions giving the lender a “priming lien,” that is, a security interest with priority over pre-existing security interests. This phenomenon could be seen as a means by which DIP lenders divert value from pre-existing lenders. Most DIP lenders, however, are the same banks that extended prepetition credit facilities (PCFs) to the debtor. A priming lien typically primes only the DIP lender’s own pre-existing security interest. There is no diversion of value. As Table 5 illustrates, sixty-six percent of priming liens involve the DIP lender priming itself; in the remaining thirty-four percent, the DIP lender obtained a priming lien at the expense of another secured lender. We cannot say, however, whether the DIP lender adequately compensated the pre-existing secured lender for the priming lien.

Senior creditor control, then, appears to be pervasive in a large number of corporate bankruptcies. The majority of firms will see their CEOs replaced and will sign loan agreements that give lenders significant control over the course of the Chapter 11 process. Evidence on PCFs indicates that, for most firms, the senior lender has effective control over the debtor’s access to cash and thus determines the timing of the bankruptcy filing. Our analysis of DIP covenants suggests that this control extends beyond the filing and continues throughout the bankruptcy case in the form of line-item budgetary control over the debtor’s operations.

*Creditor Conflict.* Tables 6 and 7 offer direct and indirect measures of creditor conflict. Table 6 focuses on an indirect measure—creditor concentration. When most secured debt is held by one party and most unsecured debt by another, creditor conflict is likely to be significant. Secured debt is indeed concentrated; in the median firm, the top three secured creditors hold 100 percent of secured debt (if the debt was syndicated, we count the group as a single creditor). Unsecured claims are somewhat more dispersed, but still significantly concentrated. In the median firm, nearly fifty percent of the unsecured debt is held by three creditors.

Direct measures of creditor conflict are presented in Table 7, which catalogues the frequency with which the unsecured creditors committee (UCC) and the senior lender (the PCF lender or DIP lender) objected to actions proposed by the debtor corporation. With respect to the UCC, the most common objection (in thirty-four percent of cases) was to the appointment or compensation of

professionals, whose fees reduce returns to unsecured creditors. Objections to the terms of the DIP loan (twenty-nine percent) and to asset sales (twenty-seven percent) were the next most common. These UCC objections suggest strongly that, in a large number of cases, the managers of the corporation are not acting to maximize the returns of unsecured creditors, who are generally the firm's residual claimants.

While senior creditors obtain substantial control through their loan agreements, they too may object to actions proposed by the debtor corporation. The most common objections are to the appointment or compensation of professionals (twenty-five percent), asset sales (thirteen percent), and the use of cash collateral (eleven percent). The frequency of objections raises doubts again about the conduct of management. In a significant number of cases, managers appear not to be acting to further the interests of either senior or junior lenders. We see, then, creditor conflict as well as manager-creditor conflict.

## 5. Hypothesis Tests

*Theory.* Our primary question is whether (and to what extent) creditor conflict affects the ultimate allocation of the bankrupt firm's assets. This question is important because creditor control and conflict can lead to suboptimal sales or reorganizations.<sup>31</sup> We provide a formal model of creditor conflict and its effect on bankruptcy outcomes in the appendix. An intuitive sketch of the model is provided below.

Consider, first, the incentives of a secured lender whose claim is *oversecured*, meaning that the firm's assets, if sold immediately, would yield more than the lender's claim. This implies that the lender will be paid in full, even if the sale occurs at a "fire sale" price that could be avoided by waiting, and perhaps reorganizing.

Relative to a strategy that maximizes the value of the bankruptcy estate, the oversecured lender is always biased toward an immediate resolution of the case. If asset value is volatile, the delay caused by the reorganization process can only harm the lender. Any increase in value will offer no benefit, because the

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<sup>31</sup> LoPucki and Doherty, for example, argue that bankruptcy sales generate significantly less value for creditors than traditional reorganizations. Lynn M. LoPucki & Joseph W. Doherty, *Bankruptcy Fire Sales*, 106 Mich. L. Rev. 1 (2007).

lender's payoff is capped by its claim. Decrease in value can be costly, because it may reduce the lender's payoff.

While the oversecured creditor will always prefer an immediate sale, the ability to realize his preferred outcome should depend on the extent to which he is oversecured. For a *substantially oversecured* creditor, the bankruptcy judge is likely to be less sympathetic to actions that would force an immediate sale (such as covenants in the DIP loan that force a sale, or motions to lift the automatic stay). When the value of the firm greatly exceeds the secured creditor's claim, it is very likely that the creditor will be paid in full, even in a reorganization. As the secured creditor becomes only *slightly oversecured*, we expect that the judge is more likely to approve attempts by the secured creditor to move for a quick sale, since his claim is more at risk.

Now consider a secured lender whose claim is *undersecured*, that is, its claim exceeds the sale value of the firm's assets. In this case, the secured lender will not be paid in full in a sale. For a *slightly undersecured* creditor, his incentives are similar to the oversecured creditor, since reorganization can increase his payoff only slightly, while a decline in firm value can hurt his payoff substantially. As the secured creditor becomes *substantially oversecured*, he will have incentives that are better aligned with maximizing the value of the estate, since he will capture nearly all the upside from a successful reorganization. The substantially oversecured creditor will be the firm's approximate residual claimant and entitled to the entire value of the firm.<sup>32</sup> Thus, if an illiquidity problem makes reorganization socially optimal, the lender will prefer to reorganize the firm in order to improve its payoff.

Finally, consider unsecured creditors. They will generally exhibit a bias toward lengthy cases, especially reorganizations, when the firm enters bankruptcy with senior secured debt. Longer delay adds to the risk of their eventual payoff, and junior claimants typically exhibit a preference toward greater risk.<sup>33</sup> When the firm has no secured debt, however, unsecured creditors

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<sup>32</sup> The undersecured creditor's incentives are not exactly consistent with social efficiency. It will still have a slight bias toward a quick sale, all else equal, because unsecured creditors may capture some of the upside risk to a high-value reorganization.

<sup>33</sup> Here, we are employing standard logic that is normally used to describe equity-versus-debt conflicts. Unsecured creditors expect to share most of the gains from a successful (high value) reorganization, but they expect to avoid most of the losses from a

will prefer to make the reorganization-versus-sale decision in a way that is consistent with the maximization of firm value.

This simple analysis of creditor conflict predicts that a bankrupt firm's creditors will make the value-maximizing decision when secured creditors are substantially undersecured or when there is no secured debt.<sup>34</sup> If the capital structure is a mix of oversecured and unsecured debt, then a bias toward sale will result. The intensity of the bias will depend on which party exerts more control over the outcome. We expect that senior creditors will have greater influence over the outcome when their claims are larger relative to the value of the firm. Thus, a capital structure with slightly oversecured senior creditors will produce relatively quick cases and yield sales more often than traditional reorganizations. As the power of unsecured creditors increases relative to secured creditors, the reverse should be true.

These observations point to the following hypothesis: because time to resolution is generally longer when a firm is reorganized than when it is sold off, a traditional reorganization is more likely among (a) firms with no secured debt and those with undersecured lenders than among (b) firms with oversecured lenders. Because non-prepackaged traditional reorganizations typically consume much more time than an asset sale, we predict that the same factors will increase the duration of (non-prepack) Chapter 11 cases.

These hypotheses would be easy to test if capital structures were randomly assigned to firms before they entered bankruptcy. With random assignment, we could assume that any correlation between the probability of reorganization and secured debt levels is due to dynamics during the bankruptcy case, such as conflict between secured lenders and other participants in the bankruptcy process. In reality, firms select their capital structures. Some will

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low-value reorganization or liquidation. These losses are borne primarily by senior secured creditors. Because of this asymmetry in payoffs, unsecured creditors prefer risk, all else equal. See Michael C. Jensen and William H. Meckling, *Theory of the Firm: Managerial Behavior, Agency Costs, and Ownership Structure*, 3 J. Fin. Econ. 305 (1976).

<sup>34</sup> There are a few important assumptions that are implicit in this argument. For instance, it assumes that secured creditors have full control when they are oversecured. It also assumes that equity will be extinguished with certainty (which is approximately true in our data).

choose a high ratio of secured debt to assets; others will choose a low ratio. It is possible that the reasons for choosing different secured debt ratios are the same reasons driving firms' preferences over traditional reorganizations and going-concern sales. This is an important issue because most secured debt is incurred within the year or two preceding the bankruptcy filing. There could be a close relationship between a firm's expectations in bankruptcy and its decisions to take on secured debt.

Asset liquidity is one factor that could drive both a firm's decision to take on secured debt before bankruptcy and its preference for traditional reorganization in bankruptcy. The more liquid a firm's assets (due to tangibility<sup>35</sup> or industry conditions), the more likely it is to take on secured debt.<sup>36</sup> At the same time, a firm with liquid assets is less likely to suffer the kinds of problems (such as asymmetric information) that make a traditional reorganization attractive.<sup>37</sup> Asset liquidity, then, explains both capital structure and bankruptcy outcomes. Firms with relatively liquid assets are predicted to have both high secured debt ratios and low probabilities of reorganization. The opposite is expected among firms relatively illiquid assets: these firms will have low secured debt ratios and high probabilities of reorganization.

Thus, a theory based on asset liquidity predicts a *monotonic* relationship between secured indebtedness and the probability of traditional reorganization. Our theory—based on the divergent preferences of unsecured, undersecured, and oversecured creditors—implies a *non-monotonic* relationship. The probability should be high when this ratio is very low (near zero) and when it is very large (much larger than one). This non-monotonic pattern distinguishes our theory from the pattern predicted by an asset tangibility theory.

***Simple statistics.*** Table 8 compares the capital structures and bankruptcy outcomes of firms with different levels of secured debt. Each panel applies a

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<sup>35</sup> See, e.g., Heitor Almeida & Murillo Campello, *Financial Constraints, Asset Tangibility, and Corporate Investment*, 20 Rev. Fin. Stud. 1429 (2007).

<sup>36</sup> See, e.g., Valeriy Sibilkov, "Asset Liquidity and Capital Structure," working paper (Univ. Wisconsin-Milwaukee 2007), for recent evidence of a positive correlation between asset liquidity and secured indebtedness.

<sup>37</sup> Todd Pulvino, *Do Asset Fire Sales Exist? An Empirical Investigation of Commercial Aircraft Transactions*, 53 J. Fin. 939 (1998).

different measure of the ratio of secured debt to assets (“secured debt ratio”). Panel A compares *total* secured debt to total assets, which is a good proxy for secured creditor control if we assume that secured creditors act as a coalition. Panel B computes the ratio of the *largest* secured claim to total assets. This is a good proxy for secured creditor control if we assume that secured creditors act independently and that the largest secured creditor is the most influential. Panel C computes the ratio of the *largest* secured claim to the value of assets held by firms in which the secured creditor has a security interest (“collateral”). In other words, if the largest secured creditor has a security interest in *any* assets held by a subsidiary, we assume that the creditor’s security interest extends to *all* of the subsidiary’s assets. We make this assumption because (i) the security interest of a dominant secured creditor typically did extend to substantially all of the subsidiary’s assets and (ii) we were unable to value separately the particular assets in which a creditor had a security interest. In sum, the secured-debt-to-assets ratio in Panels A and B use different numerators (total secured debt versus largest secured claim) but the same denominator (total assets). Panels B and C use the same numerator (largest secured claim) but different denominators (total assets versus collateral). We view these different measures as robustness checks and we will employ them in the multivariate analysis below.

The patterns in Table 8 are largely invariant to the measure of secured debt to assets. Across all measures, several distinctive patterns emerge. First, there is a non-monotonic relationship between the size of the firm (measured by assets) and its secured debt ratio. Firms with no secured debt (unsecured firms) and those with secured debt that exceeds the value of the firm (undersecured firms) are much smaller than firms with positive levels of secured debt that is worth less than the value of the firm (oversecured firms). For example, in Panel 1 of Table 8, the median *unsecured* and *undersecured* firms had assets worth \$4.34 million and \$18.56 million, respectively. By contrast, the median *oversecured* firm had assets ranging from \$93.63 million to \$195.52 million.

The small size of undersecured firms is somewhat deceiving. Prior to entering bankruptcy, these firms were comparable in size to oversecured firms in which secured debt exceeded fifty percent of asset value. During the months prior to filing, undersecured firms suffered a larger decrease in value than any other type of firm. We are unsure why the decline was so steep for these firms.

We see a very different relationship between secured debt levels and secured debt ratios. Panel 1 of Table 8 shows that the median undersecured firm had about as much secured debt (\$70.87 million) as oversecured firms (between \$32.31 and \$87.29 million), even though the median undersecured firm was much smaller. Thus, variation in secured debt ratios appears to be due more to variation in asset value than in the level of secured debt. This points to the importance of controlling for asset value in the multivariate analysis reported below.

The most important pattern in Table 8, for our purposes, is the relationship between the probability of reorganization and the ratio of secured debt to assets. In each panel, we see the hypothesized non-monotonic relationship. In Panel A, for example, the likelihood of reorganization is higher among unsecured (forty-four percent) and undersecured firms (forty-seven percent) than it is among those with oversecured debt (between twenty-one and thirty-three percent).<sup>38</sup> Also consistent with our theory, among oversecured firms, the probability of reorganization is declining<sup>39</sup> in the ratio of secured debt to assets (we do not, however, observe this particular pattern in Panel C).

These patterns are consistent with the hypothesis that secured lender preferences distort real economic outcomes. If secured lenders can distort economic outcomes, we should see a response from the unsecured creditors committee (UCC) when lenders propose outcomes that will reduce payoffs to unsecured creditors. Objections to sales, for example, should be more common in cases involving oversecured firms than in those involving unsecured or undersecured firms. Objections should be less common among *unsecured* firms, because unsecured creditors should have greater influence over the bankruptcy process when there are no secured creditors. Objections should be less common among *undersecured* firms for two reasons. First, undersecured lenders are less

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<sup>38</sup> In Panels A and B, the difference between undersecured firms and slightly undersecured firms (50-100%) is statistically significant at the five percent level. The difference is not significant in Panel C. The difference between unsecured firms and highly oversecured firms (0-50%) is not significant in Panels A and B, probably due to the small sample size. It is marginally significant (at the ten percent level) in Panel C.

<sup>39</sup> In Panel A, the difference is significant at the ten percent level. In the other panels, the difference is not significant.

likely to agitate for a quick sale. Second, when these lenders do agitate for a sale, a court is unlikely to grant the UCC's objection (relative to a case where the lenders are oversecured) because these lenders are effectively the firm's residual claimants and will tend to advocate the socially efficient bankruptcy outcome. Knowing that objections will be denied, the UCC will not object to the sale.

These predictions are borne out in the data, as Table 8 shows. Panel A, for example, shows that objections to sale occurred in thirty to fifty percent of cases involving oversecured firms. The percentages are much lower (eleven percent and twenty percent, respectively) in cases involving unsecured and undersecured firms.

*Multivariate analysis.* Tables 9 and 10 analyze the probability of traditional reorganization using a logit model. The dependent variable equals 1 when a Chapter 11 case concluded with a traditional reorganization and equals 0 when the case concluded in a sale of the entire firm. The latter category includes liquidating plans of reorganization, section 363 sales, conversions to Chapter 7, and dismissals.

Table 9 presents a simple model in which the probability of traditional reorganization is a function of the pervasiveness of secured debt, firm size, and other variables that are fixed when the firm enters bankruptcy. Columns (1) through (3) apply different measures of the secured-debt-to-assets ratio, as in Table 8. The variable "Secured Debt=0" is a dummy equal to one for unsecured firms and zero for all others. Similarly, "Secured Debt > 100% Assets" is a dummy equal to one among undersecured firms and zero among all others. The coefficients on these variables tell us whether unsecured and undersecured firms are more (or less) likely to undergo a traditional reorganization than oversecured firms (the excluded category). Regardless of the secured debt measure, the primary result is the same: the probability of a traditional reorganization is significantly higher (between forty and fifty percent higher) among unsecured and undersecured firms. This is consistent with our theory linking secured creditor preferences and bankruptcy outcomes.

We explore this theory further in Columns (4) and (5), which distinguish firms with no secured debt (the excluded category) from firms with substantially oversecured creditors ("Secured Debt > 0% but < 50% Assets"), slightly oversecured creditors ("Secured Debt > 0% but < 50% Assets"), and undersecured

creditors (“Secured Debt > 100% Assets”). We do not distinguish between slightly and substantially undersecured creditors because our data include very few (only nine) undersecured firms. Our theory predicts that the probability of a traditional reorganization will not differ among firms with no secured debt, substantially oversecured debt, and undersecured debt. The probability should differ, and be substantially lower, only among firms with slightly oversecured debt.

This theory finds some, but not complete, support in Table 10. When the secured-debt-to-assets ratio is defined as the ratio of *total* secured debt to *total* assets, the predicted patterns emerge. Columns (1) and (2) show that the probability of traditional reorganization does not differ between firms with no secured debt (the excluded category) and those with undersecured creditors. Firms with substantially oversecured debt are less likely to reorganize, but the difference is marginally significant. Firms with slightly oversecured creditors, however, are less likely to reorganize and the effect is significant at conventional levels. So far, the patterns are roughly consistent with our theory. But when we redefine the secured-debt-to-assets ratio as the ratio of the *largest* secured claim to total assets, the theory loses some support. Column (4), for example, shows that firms with substantially oversecured creditors are less likely to reorganize than those with slightly oversecured creditors. Though this is at odds with our theory, we still observe some aspects of the predicted non-monotonic relationship. The probability of reorganization is lower among (i) firms with no secured debt and those with undersecured creditors than it is among (ii) firms with oversecured creditors. We are exploring reasons why the results differ between Columns (4) and (5).

Table 9 ignores variables measuring in-bankruptcy developments, such as whether the firm obtained DIP financing. These variables will be driven by the same factors, such as capital structure, that influence whether a firm reorganizes or sells itself off. More importantly, we do not know the direction of causation between in-bankruptcy developments and case outcomes. A firm may be more likely to reorganize if it takes on DIP financing, or a firm may be more likely to take on DIP financing if it expects to reorganize. Due to this endogeneity problem, we exclude in-bankruptcy developments from the simple model in Table 9.

We include the potentially endogenous measures of post-bankruptcy developments in Table 10 as robustness checks. Each column applies a different measure of the secured debt ratio. The basic patterns observed in Table 9 are robust to inclusion of most post-bankruptcy variables. In Table 10, for example, columns (1), (3), and (5) show that unsecured (“Secured Debt=0”) and undersecured firms (“Secured Debt>100% Assets”) are significantly more likely to reorganize than oversecured firms, even after controlling for DIP lending and the formation of an equity committee. Columns (2), (4), and (6), however, show that these patterns become fragile when other post-bankruptcy variables—post-filing CEO turnover and use of cash collateral—are included. The fragility is due to high collinearity between secured debt levels, on the one hand, and CEO turnover and use of cash collateral on the other. We take this as evidence of important endogeneity problems, but we do not think it undermines our general conclusion: unsecured and undersecured firms are more likely to reorganize than oversecured firms. This correlation, we believe, is driven by the divergent preferences of different types of secured creditors. These preferences could also influence other post-filing variables, such as CEO turnover. This would explain the multicollinearity that reduces the magnitude and significance of the secured debt variables in Table 10.

Overall, Tables 9 through 10 are largely consistent with the hypothesis that bankruptcy outcomes are heavily influenced by the divergent preferences of creditors. The results are also inconsistent with at least one alternative theory, based on asset tangibility. An argument based only on asset tangibility would predict that sale probabilities are strictly increasing in the ratio of secured debt to assets, but we find clear evidence of a non-monotonic relationship. This non-monotonicity is fully consistent with creditor conflict, but not with a story based solely on asymmetric information.

## **6. Discussion and Conclusions**

The data presented here show that, among large privately and publicly held businesses, creditor control is pervasive. Equityholders and managers exercise little or no leverage during the reorganization process. Eighty percent of CEOs are replaced before or soon after a bankruptcy filing. Sixty-seven percent of firms are sold off. Very few reorganization plans (at most 6 percent) deviate from the absolute priority rule in order to distribute value to equityholders (see Table 5).

Creditors dictate the dynamics of the reorganization process. Senior lenders exercise significant control through stringent covenants contained in DIP loans. Unsecured creditors gain leverage through objections and other court motions.

Bargaining between secured and unsecured creditors can distort the reorganization process. A Chapter 11 case is significantly more likely to result in a sale if secured lenders are oversecured; it is much less likely when these lenders are undersecured or when the firm has no secured debt at all.

We draw two conclusions from these patterns. First, the advent of creditor control has not eliminated the fundamental inefficiency of Chapter 11: resource allocation questions (whether to sell or reorganize a firm) are confused with distributional questions (how much each creditor will receive). Instead of separating the two questions, Chapter 11 gives senior lenders, unsecured creditors, and equityholders leverage over resource allocation issues. Because these parties have distinct preferences, the bargaining process can yield a misallocation of assets. During the 1980s, this problem was noted by Baird and Jackson, who emphasized the conflict between creditors and equity holders.<sup>40</sup> Today, as our data show, the same problem persists, but now the conflict is between senior and junior lenders.

Second, although creditors have obtained significant control over the reorganization process, it is somewhat unclear whether they have complete control. Both senior and junior lenders regularly object to actions taken by the debtor's management. This raises interesting questions about the incentives of managers: if equity holders are not part of the picture, and if both senior and junior creditors are unhappy with the firm's activities, then in whose interest are the managers acting?

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<sup>40</sup> Douglas G. Baird and Thomas H. Jackson, *Corporate Reorganizations and the Treatment of Diverse Ownership Interests: A Comment on Adequate Protection of Secured Creditors in Bankruptcy*, 51 U. Chi. L. Rev. 97, 121 (1984).

**Table 1: Capital Structure of Parent and Subsidiaries, Before and At Filing**

	<b>N</b>	<b>Mean</b>	<b>SD</b>	<b>Median</b>	<b>Min</b>	<b>Max</b>
<b>Assets (millions)</b>						
Before (Compustat)	99	662.8	1,447.8	151.2	0.9	10,255.0
At Filing	90	503.7	1,773.0	66.0	0.0	15,859.9
<b>Debt (millions)</b>						
Before (Compustat)	99	574.1	1,256.8	111.6	0.6	8,704.8
<b>Secured Debt (millions)</b>						
Before (Compustat)	96	147.0	477.7	6.0	0.0	4,228.9
At Filing	90	190.3	476.7	35.7	0.0	3,986.8

**Table 2: Capital Structure of Parent and Subsidiaries, Before and At Filing**

	Ratio of Total Secured Debt to Total Assets		Ratio of Dominant Secured Creditor's Claim to Total Assets	
	N	Mean	N	Mean
<b>No Secured Debt</b>				
Before	97	0.35		
At Filing	88	0.10		
<b>Secured Debt Covers &lt; 50% of Assets</b>				
Before	97	0.55		
At Filing	88	0.40	88	0.40
<b>Secured Debt Covers &gt;50% but &lt;100% of Assets</b>				
Before	97	0.08		
At Filing	88	0.27	88	0.26
<b>Secured Debt Covers &gt; 100% of Assets</b>				
Before	97	0.02		
At Filing	88	0.23	88	0.20

**Table 3: Filings and Outcomes**

<b>Variable</b>	<b>N</b>	<b>Mean</b>	<b>SD</b>	<b>Median</b>	<b>Min</b>	<b>Max</b>
<b>Types of Filings</b>						
Chapter 7 Filings	153	0.03				
Chapter 11 Filings	153	0.97				
Prepackaged Chapter 11 Case	146	0.09				
Involuntary Filings	153	0.05				
<b>Venue</b>						
Filed in Delaware	153	0.22				
Filed in SDNY	153	0.10				
<b>Legal Outcomes in Chapter 11</b>						
Confirmed Chapter 11	146	0.75				
Chapter 11 Converted to Chapter 7	146	0.14				
Chapter 11 Dismissed	146	0.09				
Case Ongoing	149	0.02				
<b>Economic Outcomes in Chapter 11</b>						
Traditional Reorganization	146	0.32				
Entire Firm Sold Off	148	0.66				
Any Asset Sales	149	0.85				
<b>Case Duration in Chapter 11</b>						
To Outcome	142	15.33	10.92	13.1	1.13	61.9
To Motion for Sale of Firm	25	2.87	3.92	0.9	0	16.2
To Motion for First Sale	106	2.26	3.07	1.33	0	16.57

**Table 4: CEO Turnover**

<b>Variable</b>	<b>N</b>	<b>Mean</b>
Turnover within one year of filing	134	0.41
Turnover within two years of filing	135	0.70
Turnover during two years after filing	134	0.17
Any Turnover	138	0.78

**Table 5: Terms of Financing**

	<b>N</b>	<b>Mean</b>	<b>SD</b>	<b>Median</b>	<b>Min</b>	<b>Max</b>
<b>Prepetition Financing</b>						
Had Prepetition Credit Facility (PCF)	106	0.75				
PCF was Secured	76	0.97				
PCF Secured by All Assets	67	0.90				
<b>Postpetition DIP Financing</b>						
Had DIP Loan	151	0.50				
Used Cash Collateral	152	0.26				
Used DIP Loan or Cash Collateral	152	0.76				
PCF Lender was also DIP Lender	64	0.53				
<b>Size of DIP Loan</b>						
Maximum DIP Loan	67	92.77	247.98	20.00	0.20	1743.00
DIP Loan ÷ Assets	52	0.87	3.66	0.15	0.01	26.28
DIP Loan ÷ Unencumbered Assets	53	-0.70	11.91	0.14	-82.55	17.23
<b>Priority of DIP Loan</b>						
DIP Secured by All Assets	63	0.92				
DIP with Admin. Expense Superpriority	63	0.95				
DIP with Priming Security Interest	62	0.65				
DIP with Priming Interest, DIP not PCF Lender	38	0.34				
<b>Financial covenants in DIP Loan</b>						
Budget Limits	58	0.72				
Capital Expenditure Limits	55	0.55				
EBITDA Targets	51	0.49				
Any Financial Covenants	59	0.90				
<b>Other Covenants in DIP Loan</b>						
Automatic Stay Terminates in Event of Default	58	0.90				
Power of Attorney	44	0.27				
Deadlines for Disclosure Statement or Plan	46	0.24				
Sale Requirements	47	0.23				

**Table 6: Unsecured Creditor Concentration, Equity Concentration and Payoffs**

	<b>N</b>	<b>Mean</b>	<b>SD</b>	<b>Median</b>	<b>Min</b>	<b>Max</b>
<b>Unsecured Debt Concentration</b>						
Largest Creditor, Share of Unsecured Parent Debt	86	.39	.30	0.29	0.00	1.00
Top 3 Creditors, Share of Unsecured Parent Debt	81	.51	.31	0.49	0.00	1.00
<b>Equity Concentration</b>						
Largest Shareholder, Share of Equity	102	0.36				
Top 2 Shareholders, Share of Equity	89	0.50				
Equity Committee Appointed	153	0.05				
<b>Equity Payoffs</b>						
Equity holders Received Payment	83	0.18				
APR Deviation	109	0.08				
APR Deviation, excluding warrants	109	0.06				

**Table 7: Objections and Motions**

<b>Variable</b>	<b>N</b>	<b>Mean</b>	<b>SD</b>	<b>Median</b>	<b>Min</b>	<b>Max</b>
<b><i>Unsecured Creditors Committee</i></b>						
Any UCC Objections	153	0.52				
UCC Objected to Professionals	153	0.34				
UCC Objected to DIP Loan	153	0.29				
UCC Objected to Sale	153	0.27				
UCC Objected to Exclusivity Extension	153	0.15				
UCC Objected to Plan	153	0.14				
UCC Objected to Lifting Stay	153	0.05				
UCC Moved for Exclusivity Extension	153	0.03				
UCC Objected to Conversion	153	0.03				
UCC Moved for Conversion	153	0.03				
UCC Moved for Sale	153	0.01				
Total UCC Objections	153	1.34	1.53	1.00	0.00	5.00
<b><i>Primary Secured Lender</i></b>						
Any DIP/PCF Objections	107	0.46				
DIP/PCF Lender Objected to Professionals	107	0.25				
DIP/PCF Lender Objected to Sale	107	0.13				
DIP/PCF Lender Objected to Cash Collateral Use	107	0.11				
DIP/PCF Moved for Lifting Stay	107	0.09				
DIP/PCF Lender Objected to Exclusivity Extension	107	0.07				
DIP/PCF Lender Objected to Plan	107	0.07				
DIP/PCF Lender Objected to Lifting Stay	107	0.05				
DIP/PCF Lender Moved for Conversion	107	0.03				
DIP/PCF Lender Objected to Conversion	107	0.02				
Total DIP/PCF Objections	107	0.82	1.10	0.00	0.00	4.00

**Table 8: Firm Characteristics by Secured Debt Level**

**Categorized by parent and sub's secured debt ratios**

	<b>0%</b>	<b>0-50%</b>	<b>50-100%</b>	<b>&gt;100%</b>
N	9	35	24	20
Public	0.78	0.77	0.83	0.90
Assets, mean (median)	28.19 (4.34)	1093.16 (195.52)	190.46 (93.63)	105.95 (18.56)
Compustat assets, mean (median)	79.20 (18.89)	1795.15 (668.67)	480.78 (148.69)	148.69 (151.2)
Sec. Debt, mean (median)	0.00 (0.00)	238.46 (32.31)	156.37 (87.29)	238.69 (70.87)
Traditional	0.44	0.33	0.21	0.47
Sale	0.56	0.63	0.79	0.50
UCC objected to sale	0.11	0.29	0.50	0.20
UCC objected to sale, conditional on sale	0.20	0.41	0.58	0.33
Converted	0.22	0.03	0.17	0.12
Dismissed	0.00	0.03	0.17	0.12
Prepack	0.11	0.09	0.04	0.06

**Categorized by dominant claim across parent and subs**

	<b>0%</b>	<b>0-50%</b>	<b>50-100%</b>	<b>&gt;100%</b>
Public	0.78	0.81	0.77	0.93
Assets, mean (median)	28.19 (4.34)	921.29 (184.32)	181.62 (30.76)	95.69 (30.25)
Sec. Debt, mean (median)	0.00 (0.00)	219.44 (55.23)	182.80 (26.92)	243.98 (154.48)
Traditional	0.44	0.27	0.27	0.64
Sale	0.56	0.70	0.71	0.38
UCC objected to sale	0.11	0.35	0.41	0.14
UCC objected to sale, conditional on sale	0.20	0.47	0.53	0.20
Converted	0.22	0.07	0.09	0.18
Dismissed	0.00	0.05	0.23	0.00
Prepack	0.11	0.07	0.05	0.09

**Categorized by dominant claim across parent and subs in which creditor has claim**

	<b>0%</b>	<b>0-50%</b>	<b>50-100%</b>	<b>&gt;100%</b>
Public	0.78	0.82	0.74	0.94
Assets, mean (median)	28.19 (4.34)	913.67 (175.77)	377.16 (37.34)	86.47 (39.05)
Sec. Debt, mean (median)	0.00 (0.00)	213.39 (52.79)	227.10 (32.25)	196.70 (77.06)
Traditional	0.44	0.22*	0.35	0.53
Sale	0.56	0.74	0.64	0.47
UCC objected to sale	0.11	0.37*	0.39	0.16*
UCC objected to sale, conditional on sale	0.20	0.46	0.57	0.25*
Converted	0.22	0.08	0.09	0.13
Dismissed	0.00	0.06	0.22	0.00
Prepack	0.11	0.08	0.04	0.07

**Table 9: Probability of Traditional Reorganization  
Baseline Logit Model**

Dependant variable equals 1 if the case resulted in a traditional reorganization and 0 if it resulted in a sale. Robust p-values appear in brackets.

	(1)	(2)	(3)	(4)	(5)
<b>Secured Debt = 0</b>	<b>2.291**</b> [0.036]	<b>2.224**</b> [0.038]	<b>1.916**</b> [0.042]		
<b>Secured Debt &gt; 0% but &lt; 50% Assets</b>				<b>-2.211*</b> [0.075]	<b>-2.675**</b> [0.029]
<b>Secured &gt;50% but &lt; 100% Assets</b>				<b>-2.324**</b> [0.033]	<b>-1.969*</b> [0.088]
<b>Secured Debt &gt; 100% Assets</b>	<b>2.119***</b> [0.004]	<b>3.089***</b> [0.001]	<b>1.728**</b> [0.021]	<b>-0.161</b> [0.884]	<b>0.842</b> [0.518]
Assets (millions)	0.420** [0.014]	0.411** [0.014]	0.351** [0.030]	0.411** [0.030]	0.470*** [0.007]
Pre-bankr. CEO turnover	1.125* [0.075]	1.131* [0.054]	0.716 [0.215]	1.105* [0.086]	1.250** [0.041]
Publicly Traded	-1.137* [0.091]	-1.300** [0.042]	-0.888 [0.203]	-1.123 [0.103]	-1.305** [0.046]
Software, Internet, High-Tech	0.406 [0.596]	0.386 [0.602]	0.403 [0.583]	0.410 [0.594]	0.363 [0.635]
Finance	0.504 [0.608]	0.411 [0.666]	0.350 [0.741]	0.454 [0.669]	0.737 [0.481]
Filed in Delaware	-1.084* [0.094]	-1.060 [0.121]	-0.915 [0.156]	-1.073* [0.095]	-1.065 [0.108]
Filed in SDNY	-0.958 [0.206]	-0.857 [0.271]	-0.513 [0.459]	-0.968 [0.200]	-0.830 [0.294]
Observations	78	78	78	78	78
Definition of assets	Total	Total	Collateral	Total	Total
Definition of secured debt	Total	Largest Claim	Largest Claim	Total	Largest Claim

**Table 10: Probability of Traditional Reorganization  
Logit Model with In-Bankruptcy Developments**

Dependant variable equals 1 if the case resulted in a traditional reorganization and 0 if it resulted in a sale. Robust p-values appear in brackets.

	(1)	(2)	(3)	(4)	(5)	(6)
<b>Secured Debt = 0</b>	<b>1.965**</b>	<b>0.480</b>	<b>2.147**</b>	<b>0.333</b>	<b>1.634**</b>	<b>0.156</b>
	[0.041]	[0.700]	[0.017]	[0.752]	[0.045]	[0.882]
<b>Secured Debt &gt; 100% Assets</b>	<b>1.498*</b>	<b>1.236</b>	<b>3.229***</b>	<b>3.720***</b>	<b>1.553**</b>	<b>1.225</b>
	[0.055]	[0.150]	[0.001]	[0.000]	[0.050]	[0.175]
Assets (millions)	0.179	0.130	0.233	0.153	0.150	0.071
	[0.251]	[0.487]	[0.119]	[0.289]	[0.284]	[0.639]
Prepetition CEO Turnover	1.187*	1.583	1.277*	2.296**	0.793	1.219
	[0.054]	[0.118]	[0.066]	[0.046]	[0.214]	[0.238]
Postpetition CEO Turnover		2.004*		3.024**		1.906*
		[0.065]		[0.019]		[0.061]
Prepetition Credit Facility (PCF)		-1.229		-0.990		-0.898
		[0.105]		[0.248]		[0.253]
Used Cash Collateral		-0.367		-1.670		-0.800
		[0.753]		[0.161]		[0.502]
Had DIP Loan	1.145*	0.692	1.153*	0.200	0.990	0.459
	[0.063]	[0.526]	[0.099]	[0.863]	[0.106]	[0.671]
UCC Objected to DIP Loan	0.279	0.452	0.139	0.413	0.149	0.383
	[0.647]	[0.509]	[0.827]	[0.588]	[0.808]	[0.575]
Equity Committee Appointed	-0.951	-0.843	-1.678	-1.782	-0.796	-0.581
	[0.422]	[0.567]	[0.157]	[0.104]	[0.487]	[0.642]
Publicly Traded	-0.761	-0.373	-1.048	-0.880	-0.642	-0.211
	[0.290]	[0.686]	[0.127]	[0.381]	[0.402]	[0.841]
Software, internet, other high-tech	0.187	-0.128	0.054	0.016	0.101	0.019
	[0.787]	[0.884]	[0.938]	[0.987]	[0.881]	[0.983]
Finance	0.855		0.715		0.554	
	[0.447]		[0.506]		[0.628]	
Filed in Delaware	-0.849	-0.747	-1.063	-1.020	-0.871	-0.695
	[0.218]	[0.312]	[0.128]	[0.142]	[0.197]	[0.341]
Filed in SDNY	-0.763	-0.439	-0.972	-0.796	-0.688	-0.348
	[0.284]	[0.582]	[0.203]	[0.377]	[0.314]	[0.653]
Observations	78	69	78	69	78	69
Definition of assets	Total	Total	Total	Total	Collateral	Collateral
Definition of secured debt	Total	Total	Largest Claim	Largest Claim	Largest Claim	Largest Claim

## Appendix: Formal Model

Consider a firm that has recently filed for bankruptcy; we will refer to the bankruptcy filing date as date 0. The firm faces a simple decision about whether to conduct an immediate sale, or wait and reorganize.

If the firm chooses to sell immediately at date 0, a value  $X$  will be realized, which is known by all participants. If it instead chooses to wait, the future value of the firm when the reorganization plan is confirmed (call this date 1) may increase or decrease from its value on the filing date. Suppose that with probability  $p$  the firm's value increases to  $uX$  by date 1, where  $u > 1$ , and with probability  $(1-p)$  the firm's value decreases to  $dX$ , where  $d < 1$ . We focus on parameter values such that  $uX > F > dX$ . Assuming a discount rate of zero, it is value-maximizing to reorganize if and only if

$$G(p) \equiv pu + (1-p)d > 1$$

Or, equivalently, the probability  $p_e$  above which reorganization is value-maximizing is given by

$$p_e > \frac{1-d}{u-d}$$

We suppose that  $p$  is random and, for simplicity, is distributed uniform over the interval  $[0,1]$ . This implies that it is efficient to sell and to reorganize the firm with positive probability, depending on the realization of  $p$ . Social efficiency is not guaranteed, because parties who exert influence over the decision may have incentives that are distorted by their position in the capital structure.

For simplicity, we focus on the conflict between senior and junior creditors, supposing that equity is sufficiently "out of the money" that their interests will be extinguished in all possible outcomes. This makes the junior creditors the residual claimants in the bankruptcy process. Distributions will be made according to priority: the secured creditor will receive the first  $F$  dollars of any realized value, with unsecured creditors receiving the remainder if any exists.

Suppose the senior creditors have allowed claims worth  $F$ , secured by all the firm's assets. Then we will say that secured creditors are *oversecured* if  $F/X < 1$ , and *undersecured* if  $F/X > 1$ . We suppose that bankruptcy outcomes will be determined as follows: management will pursue the efficient outcome unless the secured creditor

attempts to force a sale. For concreteness, we suppose this is achieved by making a motion to lift the automatic stay, though other methods of creditor control (such as including covenants in the DIP loan that force the firm to find a buyer) apply as well. If the judge grants the motion, the secured creditor will be able to seize its collateral. We assume that if this occurs, management will agree to sell the firm in advance of the seizure of collateral, knowing that it has no hope of reorganizing. The sale could be a going-concern or piece-meal sale of assets, as either interpretation is consistent with the model.

We assume that the judge's decision to lift the stay depends on the amount owed to the secured creditor, as well as the sale and reorganization values of the firm ( $X$  and  $G(p)X$ , respectively). Specifically, the probability that the judge grants a motion to lift the stay is a function of the following ratio:

$$K \equiv \min\{F, X\} / (G(p)X).$$

We denote the probability of approving the motion to lift the stay as  $L(K)$ , and assume it is always strictly between 0 and 1. We also assume, importantly, that  $L(K)$  is increasing in  $K$ , which is consistent with the bankruptcy code. To see this, note that the numerator of  $K$ ,  $\min\{F, X\}$ , represents the secured portion of the creditor's claim which is entitled to adequate protection. The denominator of  $K$ ,  $G(p)X$ , is the expected reorganization value of the firm. If  $\min\{F, X\}$  is low relative to  $G(p)X$ , then it is more likely that the secured creditor's collateral is protected from a decline in value, and hence the judge will be less likely to find an absence of adequate protection. Conversely, as  $\min\{F, X\}$  approaches  $G(p)X$ , there is greater likelihood that the secured creditor's claim will decline in value in the reorganization process, increasing the likelihood that the judge will find an absence of adequate protection.

We now analyze the probability of reorganization as a function of  $F/X$ , depending on whether the secured creditor is oversecured or undersecured.

**Case 1: Secured creditors are oversecured:  $F/X < 1$**

When secured creditors are oversecured, they will always make a motion to lift the stay in an attempt to force a sale if management would not propose a sale themselves. To see this, note that if the firm is sold, the secured creditor receives  $F$ . If the firm is reorganized, the secured creditor receives

$$pF + (1-p)dX$$

which is always strictly less than  $F$ , since  $dX < F$ . Thus, using our assumption that  $p$  is distributed uniform between 0 and 1, the probability that reorganization occurs when the secured creditor is oversecured is

$$\Pr(\text{reorg, over}) = 1 - p_e - \int_{p_e}^1 L(K)dp$$

The second term in the expression,  $p_e$ , is the probability that a sale is efficient (this follows from our assumption that  $p$  is distributed uniform), so the manager voluntarily chooses it. The third term is the probability that the judge approves a secured creditor motion to liquidate, conditional on management preferring reorganization. Note that in the oversecured case,  $K = F/(G(p)X)$ . Thus, the integral is strictly increasing in  $F/X$ , since  $L(K)$  is increasing in  $K$ , and  $K$  is increasing in  $F/X$  for all  $p$  between 0 and 1. This implies that  $\Pr(\text{reorg, over})$  is strictly decreasing in  $F/X$  when the secured creditor is oversecured.

### Case 2: Secured creditors are undersecured: $F/X > 1$

Unlike Case 1, if the secured creditor is oversecured, he may favor a reorganization if  $p$  is sufficiently high. This will be the case if and only if

$$X < pF + (1-p)dX$$

Rearranging this expression, the threshold  $p^*$  above which the secured creditor prefers a reorganization is given by

$$p^* > \frac{1-d}{\frac{F}{X} - d}$$

The threshold  $p^*$  is decreasing in  $F/X$ , implying that as the secured creditor becomes more undersecured, he will favor reorganization for a larger fraction of firms. Using our assumption that  $p$  is distributed uniform, the probability of reorganization is

$$\Pr(\text{reorg, under}) = 1 - p_e - \int_{p_e}^{p^*} L(K)dp$$

In the undersecured case,  $K = 1/G(p)$ . Thus,  $K$  does not depend on  $F/X$ , but the threshold  $p^*$  is decreasing in  $F/X$  and  $L(K)$  is strictly positive for all  $p$ . Thus, the value of the integral is strictly decreasing in  $F/X$ , implying that the probability of reorganization is increasing in  $F/X$ . Note that as  $F/X$  approaches  $u$  (meaning the secured creditor becomes

the full residual claimant),  $p_e$  approaches  $p^*$ , making the value of the integral zero and the probability of reorganization becomes simply  $1 - (1-d)/(u-d)$ .

### **Case 3: No secured debt**

Clearly, when there is no secured creditor to make a motion to lift the stay, reorganization will occur if and only if it is efficient. Thus, the probability of reorganization is simply

$$\Pr(\text{reorg, no}) = 1 - \frac{1-d}{u-d}$$

Note that this probability is the same as the upper limit in Case 2, where the secured creditor is maximally undersecured.

Our analysis has shown that the probability of reorganization is strictly decreasing in  $F/X$  for  $F/X < 1$ , and strictly increasing in  $F/X$  for  $F/X > 1$ . Finally, note that when  $F = X$  (when the secured creditor is neither under- nor oversecured),  $\Pr(\text{reorg, over})$  and  $\Pr(\text{reorg, under})$  are equal, since  $p^* = 1$ . Thus, the model predicts that the probability of reorganization is non-monotonic in  $F/X$ , is minimized at  $F = X$ , and is maximized in the cases where there is no secured debt, and where the undersecured creditor becomes the full residual claimant.