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THE COSTS OF BANKRUPTCY
Chapter 7 Cash Auctions vs. Chapter 11 Bargaining

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Abstract

Our paper explores a comprehensive sample of both small and large corporate bankruptcies in Arizona and New York from 1995–2001. We find that bankruptcy costs are very heterogeneous and sensitive to measurement method. Still, Chapter 7 liquidations seem more expensive in direct and equally expensive in indirect costs, than Chapter 11 bankruptcies. The paper provides a large number of further empirical regularities.

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I Introduction

Very little is known about corporate bankruptcies of firms that are not large publicly traded corporations. Seeking to remedy this, our paper analyzes the largest sample of corporate bankruptcies to-date: over 300 cases from the Arizona and New York federal bankruptcy courts from 1995–2001. This basically represents the entire population of corporate bankruptcies in these courts. Our paper's primary objective is measuring of the costs of bankruptcy, and to determine how Chapter 7 and Chapter 11 cases differ. We explore four primary methods: the change in value of the estate during bankruptcy; the time spent in bankruptcy (a measure of indirect costs); the expenses submitted to and approved by the bankruptcy court; and the recovery rates of creditors.

In contrast to earlier literature, we do not find interpret the data to imply that bankruptcy costs are "modest." Instead, we interpret our evidence to be that bankruptcy costs are both very heterogeneous and sensitive to how they are measured. It matters whether one uses at-bankruptcy declared values or end-of-bankruptcy declared values. It matters whether one believes the value declarations filed by management. It matters whether one reports means or medians.

In exploring the Swedish system, Thorburn (2000) argues that the Swedish auction system is much faster and much cheaper than the U.S. Chapter 11 process. We find that it would be too naïve to believe this experience directly applies to the U.S.: it is correct that the Chapter 7 procedure is more similar to the Swedish system, but we find that in the United States, Chapter 7 is likely more expensive than Chapter 11. Chapter 7 also takes about as long (around two years) as Chapter 11, in stark contrast to the two months that bankruptcies take in Sweden. We find that unsecured creditors in Chapter 7 rarely receive anything, although unsecured creditors do recover about 1/3 to 1/2 of their claims in Chapter 11. This is not attributable to differing degrees of indebtedness or firm size.

Being the first study to have a systematic sample of ordinary corporate bankruptcies, we indulge an exploration into the events of bankruptcy. We uncover a large number of interesting regularities. For example, bankruptcy courts approved almost all requested expenses; the three phases of Chapter 11 bankruptcies took about equally long; bankruptcies with around $100–$200 million in assets emerge fastest; management which had a larger ownership delayed filing a reorganization

plan; the particular bankruptcy judge could matter; and creditor organization and indebtedness often mattered (but not in all regressions).

We deem to contribute on the following fronts:

1. We systematically describe the components—as well as the determinants—of the direct costs of bankruptcy, showing that Chapter 7 liquidations are not cheaper than Chapter 11 reorganizations.

2. We provide statistical evidence on a few "folk theorems" on bankruptcy that had to date no empirical support. In particular, the option value of Chapter 11 induces managers to delay the submission of a reorganization plan; larger firms, controlling for everything else, tend to choose Chapter 11 rather than Chapter 7; when they are secured creditor, banks prefer firms to be liquidated and do not favor reorganizations; and managers who own equity in their firm systematically file for Chapter 11, even if their firms are deep underwater. These findings are not surprising, but have not been previously empirically documented.

3. If time-in-bankruptcy is a good indicator of the efficiency of the procedure, our paper shows that Chapter 7 is not more efficient than Chapter 11. After controlling for endogeneity, firms that file under Chapter 7 are liquidated as slowly as are Chapter 11 firms reorganized.

4. We show that Chapter 7 cases are much more expensive than Chapter 11 cases. Bankruptcy professionals (attorneys, accountants, trustees) regularly end up with most part of the post-bankruptcy firm value in Chapter 7.

5. Creditor recovery rates are much higher in Chapter 11 than in Chapter 7.

6. Creditor concentration matters. We show that as the number of secured creditors increases—and controlling for the amount of secured debt—unsecured creditors recover less, and APR is upheld more frequently. The same result does not apply to unsecured creditors, who in most cases are syndicated in a creditors committee and who therefore behave as a single creditor.

7. APR violations are partly judge specific. There are however some variables that significantly affect the probability of APR being violated: the amount of secured debt relative to total debt (+), the duration of the case (-), the number

of secured creditors (-), the number of unsecured creditors (+), legal expenses (-), and the percent ownership of managers (+).

8. We construct a comprehensive database of bankruptcy cases that tracks firm history from the bankruptcy filing until today, and that provides information on: firm characteristics, creditors characteristics, judge characteristics and behavior, costs, duration of proceedings, recovery rates, the frequency of APR violations, and the outcome of the case. This database will be made available to researchers.

Earlier literature has relied primarily on public corporations, a different sample from our own bankruptcies. Warner (1977) finds that the direct costs of bankruptcy—compensation provided to lawyers, accountants, consultants, and expert witnesses—are about 4 percent of the market value of the firm one year prior to the default. This result is based on a sample of 11 bankrupt railroads. Altman (1984) calculates these costs to be about 7.5 percent of firm value using a broader sample of 19 bankrupt companies from 1974–1978. Using 105 Chapter 11 cases from the Western District of Oklahoma, Ang, Chua, and McConnell (1982) report that administrative fees are about 7.5 percent of the total liquidating value of the bankrupt corporation's assets. Weiss (1990), Betker (1997), and Tashjian, Lease, and McConell (1996) have similar estimates. Weiss's classic paper relies on a sample of 31 public Chapter 11 firms. The sample in Betker (1995) has 75 Chapter 11 firms. Tashjian, Lease, and McConnell (1996) use a sample of 49 prepacked Chapter 11 firms. Lubben (2000) calculates in his sample of 22 firms from 1994 that the cost of legal counsel in Chapter 11 bankruptcy represents 1.8 percent of the distressed firm's total assets, with percentages above 5 in some cases. In his average case, the debtor spends $500,000 on lawyers, and creditors spend $230,000. LoPucki and Doherty (2004) may be the most comprehensive study on professional fees: a sample of 48 cases from 1998 to 2002, mostly from Delaware and New York cases. They report that professional fees were 1.4 percent of the debtor's total assets at the beginning of the bankruptcy case. Gilson (1997) uses a sample of 108 public companies that reorganize their debt, either in a Chapter 11 (51 firms) or in an out-of-court restructuring (57 firms). Finally, Frank and Torous (1989) find that APR violations are frequent in a sample of 30 firms. Pulvino (1999) is the only paper that uses both Chapter 7 and Chapter 11 filings by nine U.S. airlines. Together, these accumulated 43 Chapter 7 filings (usually on subsidiaries and/or individual planes) and 107 Chapter 11 filings.

He finds that prices obtained in asset sales by firms reorganized under Chapter 11 were not greater than those obtained by Chapter 7 firms. Pulvino does not report information on the bankruptcy costs, nor is his sample likely representative of the typical bankruptcy.

The controversy about bankruptcy expenses is ongoing. Altman (1984), Hotchkiss (1995), and Weiss and Wruck (1998), among others, consider Chapter 11 costs to be high, but Alderson and Betker (1995), Gilson (1997), and Maksimovic and Phillips (1998) disagree. Eberhart et al (1990), Franks and Torous (1994), and Betker (1995) show that APR is often violated under Chapter 11, possibly undermining the efficiency of ex-ante contracts.

There is also some evidence from bankruptcy-related cash auction systems. Pulvino (1998) examines commercial aircraft sales, and finds that asset fire sales can indeed depress the asset value. Stromberg (2001) finds that asset fire sale and resale to management can lead to striking inefficiency in cash auction system, too. Results from international comparison also generate mixed results. Ravid and Sundgren (1998) find that the U.S. bankruptcy system is more efficient than the Finnish code. But Thorburn (2001) finds a more efficient system in Sweden. The cash auction system there is much shorter and less costly than the Chapter 11 system in the U.S.

Our paper now describes the sample, then explores both the univariate and the size-adjusted statistics of our four primary variables, then tries to explain the determinants of these variables, and finally concludes.

II The Bankrupt Firm Characteristics

A The Sample

Insert Table 1: Sample Cases, by Court and Year

Our sample are all corporate bankruptcies, with sufficient data, filed under Chapter 7 and Chapter 11 between 1995 and 2001 in the Federal Bankruptcy Courts of Arizona (AZ) and Southern New York (NY). Only these two courts have made their past cases available on the *Pacer* service, which provides the full-text source for bankruptcy documents. From 1995–2001, each court handled about 5,200 business bankruptcies, which places both of them around rank 15 among the 94 U.S. bankruptcy courts. About half of all bankruptcy cases are routinely dismissed or transferred to other courts shortly after filing. Most of the remaining two thousand cases are subsidiaries of one company, rather than individual bankruptcy cases. We also exclude bankruptcies designated as "pre-packs." Table 1 shows that, after eliminating and consolidating such cases, there were "only" 225 unique corporate Chapter 11 cases and "only" 61 unique corporate Chapter 7 cases. As far as we are aware, this is the largest and most comprehensive sample of corporate bankruptcies assembled for an academic paper.

Our Chapter 11 cases were about equally split across NY and AZ, but there were more Chapter 7 cases in NY than in AZ. As of late 2003, 26 Chapter 11 cases had not yet closed.[1] All data had to be handcoded from the full bankruptcy documents. A common problem in the analysis of bankruptcy data is that each firm reported its information in a different format. Some firms did not even report basic data, such as assets, despite a legal requirement to do so. In some cases, we had no choice but to discard the entire observation. In other cases, we could use an observation in some tests, but not in others.

The vast majority of our bankruptcies were filed "voluntarily" by the firm, rather than by creditors. Descriptive statistics and correlations of variables in our sample are in Appendix Table A.

[1] When required, we estimated the remaining duration from bankruptcy cases that had taken at least as long, but had closed.

III Descriptive Evidence

A Asset Value Changes during Bankruptcy

Insert Table 2: At-Bankruptcy Assets, Post-Bankruptcy Assets (before fees), Ratio

Upon entering bankruptcy, firms must fill out a form with declarations of their business outlook and financial situations, specifically their assets. (The debtors will later collect more information, such as balance sheet and financial statements, for filing schedules about their financial status and affairs.) Because there is necessarily a lot of discretion (e.g., some firms did not value intangible assets, others did), these declared assets were not necessarily their market values. Yet, these are the most accurate valuations available to academic research, so we have to rely on them though remain cognizant of the limitations. Table 2 shows that the median Chapter 11 case was about 10 times larger than the typical Chapter 7 case. (The *mean* assets were 40 times the size.) The 75th percentile of Chapter 7 cases was about the same size as the 25th percentile of Chapter 7 cases. There was no obvious scale difference between cases filed in NY and AZ.[2]

At the end of bankruptcy, we again obtain information on firms' values through the declaration of the distributions allocated to creditors. However, there is one important complication. In Chapter 11, when assets are sold, the cash returns into the estate. In Chapter 7, however, secured creditors can lay claim on the security, because continuation is not an argument that the firm can muster to resist seizure.[3] The final Chapter 7 declaration will not show such asset seizures, as such claims

[2] An earlier version reported *all* remaining descriptive statistics for AZ and NY cases separately, but because there are no important systematic differences in most of our descriptive or regression tables, we often no longer reported them (with one exception). Our data will be publicly available, so the reader can recompute the relevant statistics.

[3] When a firm enters bankruptcy, there is an automatic stay of all collection efforts, including foreclosure of liens. A creditor can move to vacate the stay. The two principal criteria for vacation of a stay of secured creditor collection are: (a) the debtor has no equity in the collateral; (b) the collateral is not necessary for an effective reoriganization. A debtor in Chapter 7 has no chance to survive, thus, criterion (b) is always satisfied for Chapter 7. Regarding (a), if there is equity above the value of the secured creditor's lien, the Chapter trustee will sell the collateral and remit the overage to general creditors. If there is no equity, criterion (a) is satisfied and the creditor forecloses. Because Chapter 7 debtors usually have no equity in the collateral, there usually is no secured property to be listed in an asset schedule. In contrast, in Chapter 11, for obvious reasons, the stay is commonly not vacated. And if the firm emerges, the secured creditor's lien continues (or it is given new debt), but the property usually stays.

are only recorded in the local courthouse where the assets were located. There is not even a central directory of where assets might have been, so we cannot trace these assets. Therefore, we must consider the recorded Chapter 7 distributed assets to secured creditors (and the post-Chapter 7 assets) as a lower bound. Our paper thus entertains two versions for *secured* creditor recovery: the lower bound uses only the recorded distributions in bankruptcy. The upper bound recognizes that the observed maximum total distribution available to secured creditors in Chapter 7 was 130% of pre-bankruptcy assets. We therefore assume that up to 260% of pre-bankruptcy assets were available to satisfy the secured creditors.[4] In contrast, *unsecured* creditor recovery in Chapter 7 is trustworthy.

Of course, aside from misstatement of at-bankruptcy or post-bankruptcy assets, during the (typical two) years in bankruptcy, the asset values themselves may have changed.

Table 2 shows that the average Chapter 7 case ended up with fewer pre-expense assets (17% to 80% mean range, 1% to 38% median range) to distribute than the average Chapter 11 case (107% mean, 87% median). In dollar terms, the median Chapter 7 estate was negligible in size. Not reported, in 49% of our Chapter 7 cases, firms had no secured creditors; of these, in 91% of the cases, the unsecured creditors ended up with zero assets. (The corresponding mean recovery in such Chapter 7 cases without secured creditors was 3.7%.) In sum, Chapter 7 liquidated estate values were considerably below pre-bankruptcy declarations.

Already mentioned, the Chapter 11 post-bankruptcy values were considerably higher. However, firm, lawyers, and junior creditors (but not the senior creditors) have the incentives to overstate assets at bankruptcy exit. Because it is not clear how accurate Chapter 11 post-bankruptcy values are, and because we suspect some padding of value at bankruptcy exit, we tried to track the firms. For our 194 Chapter 11 cases, we could not locate 34 post bankruptcy. Of the remaining 160, 30 are still in the original bankruptcy process. Thus, we had 130 Chapter 11's for which we could determine disposition: 16 converted immediately into Chapter 7, 1 entered Chapter 7 later, and 42 firms were later liquidated. 67 firms continued as independent companies, 3 merged, 1 refiled for Chapter 11. Thus, despite gaining

[4]We also entertained one version in which we assumed 100% recovery for senior creditors. Except for one case, in which senior creditors were owed $169 million, the firm recorded $7.9 million in pre-bankruptcy assets, and $7.3 million in senior payout, i.e., where 100% assumed recovery would come to 90 times the assets, the results were robust. Not reported: we also repeated all our regressions in winsorized form to confirm that our results held up.

value in Chapter 11, only about half of our Chapter 11 firms ultimately survived. This is mild indication that the Chapter 11 exit values were optimistic. (Appendix Table C.)

Insert Figure 1: Pre-Bankruptcy Assets vs. Post-Bankruptcy Pre-Expense Assets

Figure 1 plots Chapter 7 and Chapter 11 assets, pre- vs. post-values. As in later figures, the solid lines are localized regression smoothers for our post-bankruptcy ranges on Chapter 7 cases (solid bullets [lower bound] and solid spades [upper bounds]); the dashed line is a localized regression smoother on Chapter 11 points (crosses). The figure shows that the lower bound for Chapter 7 cases was uniformly worth less post-bankruptcy than pre-bankruptcy, with one exception for the highest value Chapter 7 case.[5] Even if we use the upper bound, where we had grossed up some observations to *twice* the pre-bankruptcy asset values, Chapter 7 value loss seemed to be above Chapter 11 value losses. Equally remarkable to us, Chapter 11 cases had asset recovery rates that were "all over." However, the line smoother in the lower graph shows that a 1-to-1 correspondence between pre- and post-bankruptcy recorded assets is not an unreasonable assumption, especially for larger bankruptcies. One outlying Chapter 11 case, had post-bankruptcy assets that were over ten times pre-bankruptcy assets.[6]

In sum, the evidence suggests that Chapter 11s were either better at retaining value throughout the bankruptcy process (Shleifer-Vishny [1998]), although the two-year Chapter 7 process (see below) does not immediately suggest "fire-sales"; more pessimistic in estimating firm value at bankruptcy entry, although there is no ex-ante reason to believe this; more optimistic in estimating firm value at bankruptcy exit, which is in the interest of some, but not other parties and for which we provided some anecdotal evidence (poor ultimate corporate survivorship); or, most

[5] *ES&US Corporation* (NY case 99-10280) was our largest Chapter 7 case. It was a real estate holding company with one asset, a building at 34–36 West 32nd Street in New York. Its bankruptcy started out as a Chapter 11, but the secured creditors managed to convince Judge Gallet that the company had no good reorganization plan. It was therefore converted into a Chapter 7 bankruptcy, in which the secured creditors received the building, and were therefore fully satisfied. It is the only Chapter 7 case for which we could find post-bankruptcy assets equal to pre-bankruptcy assets.

[6] *Quick Interiors* (NY case 97-45020) had declared assets of $76,484 at bankruptcy entry. Oddly, secured creditors were owed $129,064 and paid in full. Further, fees were $677,105, most paid to the creditor's committee. This again makes it clear how important it is to check robustness of results, winsorize, etc.

likely, a combination of all of these. Without an independent and unbiased value assessment, these causes can not be fully disentangled.

Insert Table 3: Relative Indebtness: Debt to Pre-Bankruptcy Asset Value

One reason why Chapter 7 firms may have lost so much value compared to Chapter 11 firms may be that they were far more indebted. Perhaps, Chapter 7 firms accepted more value destruction because they were so hopelessly underwater that most internal incentives had badly broken down, relative to Chapter 11 cases. But Table 3 shows that the typical Chapter 7 case was only a little more underwater than the typical Chapter 11 case, and the difference disappears in means.[7] (Unreported, there was no clear difference between AZ and NY cases.)

IV Measures of Bankruptcy Costs

A Indirect Bankruptcy Cost: Length of Time in Bankruptcy

A.1 Overall Duration

Indirect bankruptcy costs are even more difficult to define and measure. We follow the approach of previous studies (Franks and Torous 1989 and Thorburn 2000) and use the time that firms spend in bankruptcy as a (very noisy) proxy for indirect costs. The rationale is that indirect bankruptcy costs, such as bankruptcy's adverse impact on product and capital markets, increase with the time that firms spend in bankruptcy. A bankruptcy that takes 5 years to resolve probably incurs more indirect costs than a bankruptcy that takes 3 months to resolve.

[7] Appendix Table A provides some more statistics on creditor composition. Our typical Chapter 7 case had less secured debt than the typical Chapter 11 case (17% vs. 46%), fewer secured creditors (1 vs 2), and was less likely to count a bank among its secured creditors (20 vs. 36%). It also had fewer unsecured creditors (10 vs. 21), but was more likely to count a bank among its unsecured creditors (20 vs. 39). Remarkably, although they were smaller, Chapter 7 firms tended to have less managerial ownership than Chapter 11 cases, not more!

Insert Table 4: Length of Time in Bankruptcy

Table 4 shows that both the average and typical Chapter 7 and Chapter 11 bankruptcy took about two years to resolve. This is shorter than the 3.67 years that Franks and Torous (1989) report.[8] (There are no statistically significant differences between NY and AZ cases.)

Insert Figure 2: Bankruptcy Duration

Figure 2 plots the average duration of bankruptcies. Larger bankruptcies take longer to resolve, but the relative increase is swamped by idiosyncratic variation. Even the largest bankruptcies seem to only require a couple of months longer than the smallest bankruptcies. And even a corporate bankruptcy worth only a couple of thousand dollars regularly takes over a year to wind down. This contrasts with Thorburn (2001), which finds that the Swedish cash auction system takes only two months (!), and which therefore interprets the cash auction system to be more efficient. It may well be, but there is clearly more to the Swedish system than just a U.S. style liquidation of assets.

Figure 2 also shows that there is really no systematic difference between the duration of Chapter 7 and Chapter 11 bankruptcies, after asset size is adjusted for. It was surprising to us how long Chapter 7 cases took: It appears that ordinary within-company agency problems are not responsible for the process lengthiness, because Chapter 7 cases are conducted by elected trustees, who should perform the procedure and be relatively better to avoid conflicts of interest between management and creditors.

A.2 Chapter 11 Phases

Chapter 11 has three distinct phases: from filing to plan; from plan to confirmation; and from confirmation to closure.

Filing to Plan: The first phase is mostly under the control of the corporation, although the Chapter 11 U.S. Code Section 1121 prescribes a 120 filing day deadline. After the original financials have been filed, the debtor files a reorganization

[8] Our sample excludes prepacks, which can take as little as 2 weeks to resolve. The table excludes the 26 Chapter 11 cases that have not yet closed. The statistics remain similar if we predict the duration of these unclosed cases, given their observable characteristics and the fact that they have not closed within the time period ending in late 2003.

plan to determine the new financial structure of the firm. The debtor has to file this plan within 120 days after it has filed for bankruptcy. This period can be and usually is extended upon the debtor's requests. The debtor usually has the exclusive right to file the plan during these first 120 days. (Although creditors can motion to file the plan themselves, they are usually hampered by insufficient access to the financials and to the business.) The activities in the first phase reflect how complicated the cases are and how cooperative the debtor-in-possession is in facilitating the bankruptcy procedure.

Plan to Confirmation: The second phase is almost entirely under the control of the security holders and the court. In reorganizing the firm, all claimants are classified into different classes, such as secured creditors, priority unsecured creditors, non-priority unsecured creditors, and equity holders. When a class is not fully satisfied, it is regarded as impaired and allowed to vote on the plan. Majority has to be reached in both the number of the creditors and the amount owned to all creditors before the court can confirm a plan.

The length of the second phase can be considered as a proxy for the difficulty in the bargaining process. Because the plan has to be confirmed by all classes with majority rule, the length of this phase in part reflects how difficult it is to satisfy the conditions of all parties. Although the court can use "cram down" to pass the plan and save time, the court in our sample did not use it. Equity holders are most likely to exploit their bargaining power and protract the bankruptcy process during this phase.

Confirmation to Closure: The third phase is often dedicated to the implementation of the plan and the disbursement of fees to experts. It is thus under the control of management and the court. After the plan has been confirmed, professionals such as lawyers and auditors apply for and are granted compensation for their services in the bankruptcy procedure. The managers of the debtor then sets out to implement the confirmed plan. The length of the third phase should be influenced less by stakeholder gaming and more by the scale of the case, rather than by the manager's incentive. Large cases usually involve more claimants and complex financial structure, which can prolong the process of distributing the assets. There could also be potentially greater opposition during the process of plan implementation if there are more stakeholders or complicated financial structures. Although debtor management may still have some incentive to slow down the process, they should be more cooperative with the new creditors and equity holders than in the

previous two phases in order to retain their jobs. Therefore, the length of the third phase should mostly reflect how complicated the cases are instead of how efficient the procedure is.

Table 4 shows that the three phases took about equally long on average. Not reported, in AZ, the courts took sigificantly longer to approve a plan than it took firms to come up with a plan. Almost half the AZ firms even met the first phases' 120-day legal deadline (130 days on average). The opposite was the case in NY: NY corporations took much more time to file a plan (296 days on average; many filed for multiple extensions). It appears as if NY corporations were more aggressive in (and NY courts more tolerant of) exploiting the corporations' option of waiting. Alternatively, NY lawyers may just have taken more time than AZ lawyers; and NY courts may have just taken less time. (The differences were statistically significant.) Phase 2, approval of the plan, took longer in AZ (257 days) than in NY (200 days), phase 3 reversed this (NY=257 days, AZ=207 days).

Conversions: In addition, we also examined the length of bankruptcy procedure for firms that initially filed under Chapter 11, but were then transferred and closed under Chapter 7.[9] On average, converted firms spent 196 days in Chapter 11, and 476 in Chapter 7, and therefore liquidation took a total of 672 days on average. This is not statistically significantly different from the total length of pure Chapter 7 of 573 days. Similarly, the median total length of Chapter 11 conversions to Chapter 7 is 580 (not significantly different from the median length of a pure Chapter 7 case, which is 489 days).

[9]Conversions from Chapter 11 to Chapter 7 are governed by Rule 1019, 11 U.S.C., which states that upon the conversion, a new period for filing claims start. The debtor in possession or trustee previously acting in the Chapter 11 must turn over to the Chapter 7 trustee all records and property of the estate under its control. Under Section 1112(a), the debtor can convert a case to Chapter 7, except when (a) the debtor is not a debtor in possession, (b) the case originally was commenced as an involuntary case, or (c) the case was converted to a Chapter 11 other than on the debtor's request.

B Direct Bankruptcy Cost: Court-Declared Expenses

Expenses

Insert Table 5: Fees and Post-Fees Assets

Insert Figure 3: Fees Ratios and Post-Fee Asset Ratios

Table 5 and Figure 3 describe direct bankruptcy expenses. A theme in our perspective is that bankruptcy costs' measurement is delicate, and there is much heterogeneity across firms. In brief, our impression is that Chapter 7 cases seem to consume no less, and perhaps more.

Table 5 shows that the median Chapter 7 case consumed $806, the mean Chapter 7 case consumed $21,417. This amounts to around 2.5% (median) and 8.1% (mean) of pre-bankruptcy firm value. The upper panel in Figure 3 shows that there are a good number of Chapter 7 cases in which there were no court-reimbursed fees. This is probably because these firms really had no assets for reimbursement. However, in terms of post-bankruptcy assets, Chapter 7 expenses seem very large. Even assuming that there is 2.6 times as much in assets for secured creditor capture as the firm declared upon entry, the median expense ratio is 9.6%, the mean is 37.9%. (And 37.9% should be seen as a lower bound)![10] The lower panel in Figure 3 shows that in most Chapter 7 cases, 100% fees in terms of post-bankruptcy value was not unusual.

Chapter 11 cases are an order of magnitude larger, so their dollar expenses were about an order of magnitude more expensive. We also have more observations, which makes our estimates more reliable, though there are some (almost inexplicable) outliers. The typical Chapter 11 case consumed around $20,000, the mean Chapter 11 case consumed $170,000. When measured in terms of pre-bankruptcy value, Chapter 11 can seem more expensive. The mean expense ratio of 9.5% is larger than the equivalent Chapter 7 8.1% expense ratio (due to 4 outliers), although the median of 2% (vs. 2.5%) is lower. (However, the upper panel in Figure 3 shows that there are too few corporate Chapter 7 observations to draw reliable inferences, so

[10] Figure 3 shows that creditors were left with zero or almost zero assets in all Chapter 7 cases, except three: the aforementioned ES&US [NY 1999], INSPACE [AZ 1999], and Morris Pall&Ling [NY 1998]).

we would consider the reported expenses when measured against pre-bankruptcy assets to be "roughly similar.") Given our data limitations, we interpret the evidence to be that pre-bankruptcy expense ratios to be roughly similar. NY Chapter 11 cases amassed considerably higher expenses than equivalent AZ Chapter 11 cases. The lower panel in Figure 3 shows that, if measured in post-bankruptcy assets, however, Chapter 11 expenses were considerably lower than Chapter 7 expenses. In a number of Chapter 11 cases, there were no unsecured creditor committee and/or unsecured did not receive reimbursement. If the debtor did not ask for (self-)reimbursement, court-recorded Chapter 11 expenses were 0.

Our sample generates more ambiguous direct bankruptcy costs for Chapter 7 and Chapter 11 cases than previous studies. Our median ratio of direct bankruptcy costs to pre-bankruptcy assets for Chapter 11 is 2 percent, our mean ratio is around 8–9%. our median is in line with the 1.4 percent reported in Lopucki and Doherty (2004) but lower than the means reported in previous studies (4 percent in Warner (1977), 7.5 percent in Ang, Chua, and McConnell (1982), Weiss (1990), and Betker (1997)). The median is also much smaller than the median 13.2 percent in Sweden bankruptcy cases in Thorburn (2000).

Insert Table 6: Range of Expenses as Fraction of Firm

Table 6 gives the distribution of expenses. In 68 percent of our Chapter 7 observations, the bankruptcy fees ate the entire estate. In terms of pre-bankruptcy expense ratios, Chapter 11 is insignificantly cheaper than Chapter 7; in terms of post-bankruptcy expense ratios, Chapter 11 is significantly cheaper. Table 6 also measures expense ratios as a fraction of claims. Unlike assets, claims are likely to be accurate, although the expense ratios mask the degree to which a firm is underwater. (This will be controlled for later.) Relative to claims, fees in Chapter 11 cases are higher than fees in Chapter 7

However, based on our tables, we feel that it is most important to advise caution in interpreting frequently cited expense estimates. Table 6 also shows how important it is not to quickly conclude that bankruptcy costs are either modest or extreme: Any quoted bankruptcy expense depends significantly on whether means or medians are reported, and depends on which measure of asset valuation (pre or post-bankruptcy) a researcher adopts. A theorist wishing to assume low bankruptcy costs can muster expense claims to be as low as 2% (median Chapter 11 costs,

measured against at-bankruptcy entry asset values). A theorist wishing to assume high bankruptcy costs can muster claims to be as high as 100% (median Chapter 7 costs, measured against post-bankruptcy asset values). Even calibration exercises (e.g., to calculate optimal debt-equity ratios) among Chapter 11 cases are difficult to conduct: Defensible choices range from a central statistic of 2% to 20%. Moreover, overlooked in the need to justify certain assumptions, theorists often overlook the large heterogeneity in bankruptcy costs. The estimated standard deviations and interquartile ranges of bankruptcy costs, even measured in terms of pre-bankruptcy assets (Table 6), are much larger than the means. Thus, we would suggest that theorists adopt a more balanced approach: bankruptcy costs should be recognized to be very high in some firms, and very modest in other firms. Theories relying on the magnitudes of bankruptcy costs are unlikely to universally apply to all firms.

Components of Expenses

Chapter 7 expenses had three major cost components: the trustee's expenses,[11] the accountants' expenses, and the debtors' attorneys' expenses (which did not include salary collected by the debtor's management; this is not really a bankruptcy cost, because managers have to be paid for running the firm in any event.) The debtor's attorney consumes 50% more than the trustee, who consumes 50% more than the accountant.

In Chapter 11, the debtor expenses were generally largest (either 17% of assets in mean, around 2% in median). Unsecured creditors' committees consumed around one-third as much in reimbursed expenses, of course *conditional* on their presence (which is the case in 20% of our Chapter 11 cases).

[11] Bankruptcy trustees in Chapter 7 and Chapter 11 get compensated following mechanistic stipulations: usually a fixed amount plus some additional amount depending on the asset size of the case. Trustee compensation is governed by rule 330 of the code, subject to the limits imposed in rule 326(a). The trustee's compensation cannot *"exceed 25 percent on the first $5,000 or less, 10 percent on any amount in excess of $5,000 but not in excess of $50,000, 5 percent on any amount in excess of $50,000 but not in excess of $1,000,000, and reasonable compensation not to exceed 3 percent of such moneys in excess of $1,000,000, upon all moneys disbursed or turned over in the case by the trustee to parties in interest, excluding the debtor, but including holders of secured claims."*.This compensation scheme makes trustee costs a larger fraction of direct bankruptcy costs in smaller cases with less assets to be distributed.

Court Control of Fees

Insert Table 7: Court Countrol of Fees

Legal expenses have to be approved by the court. Table 7 explores whether the courts appear to have acted as a binding constraint on legal expenses in equilibrium. The answer is negative: Requests by either the debtor or unsecured creditor for reimbursement were almost always fully granted. The median reimbursement was 100%, the mean reimbursement is 99% for debtors, 97.5% for creditors. In equilibrium, courts mostly rubberstamped legal expense requests.

C Creditor Recovery Rates

The previous sections related fees to assets left in the estate. This section relates disbursed assets to what creditors are owed. Table 3 indicated that creditors were similarly indebted in Chapter 7 and Chapter 11. Therefore, Chapter 7's higher fees (in Table 5), and possibly Chapter 7's more modest value retention (in Table 1), would suggest that creditors experienced lower recovery rates in Chapter 7 than in Chapter 11.

Insert Table 8: Recovery Rates and APR violations

Table 8 shows that in 95% of Chapter 7 cases, unsecured creditors did not receive anything. (Secured recovery rates in Chapter 7 are of course not reliable.) In Chapter 11, secured creditors almost always received something, and most often were fully satisfied. According to the estimated post-Chapter 11 valuation, even unsecured creditors received 40% of their due, and 23% were fully satisfied.

In Chapter 7, APR is always followed. In Chapter 11, we found that in 88%, APR was strictly followed, in 12% it was somewhat modified. The final column computes an APR index: for a case that follows proportional allocation (i.e., ignores APR), the index is 0. For a firm that follows absolute priority, the index is 1. The average index is 91%, though even the 25th percentile is 100%. There is one outlier that yields an APR Adherence index of –40.5 percent.[12] We find fewer violations than earlier

[12] In case 98-0466 (Marlaine Associates, NV, Inc., from Arizona, judge Baum), secured are owed $75,000, unsecured are owed $250,000. At the end, secured get 50% ($37,500), and unsecured get 68.75%. So secured get less than what they should get even under a proportional distribution ($63,812). This yiels an APR Adherence index of –40.5.

studies. Although violations in favor of equity are not comparable with violations in favor of junior creditors, there are no public equity holders in most of our cases. (Private equity does not seem to receive anything in our cases.) In Weiss (1990), APR is violated in 29 out of 37 cases. In Franks and Torous (1989), 21 out of 27 cases violate APR, 18 of which are in favor of equityholders, and 3 of which (11%) are in favor of junior creditors.

Insert Figure 4: Creditor Recovery Rates, Total and Unsecured

Figure 4 plots the creditor recovery rates. The upper panel shows that we cannot say much about total recovery in Chapter 7, because our range on secured recovery is too wide. Chapter 11 total creditor recovery was about 30% of amount owed for bankruptcies with less than $1 million in assets, and reached 70–90% for bankruptcies with more than $10 million in assets. The lower panel shows how junior creditors fared: in Chapter 7, unsecured creditors received nothing in almst all cases. In Chapter 11, unsecured creditors received about 30% to 40% for bankruptcies below $5 million in assets, and between 40% to 60% for bankruptcies above $5 million. In the very largest bankruptcies, this proportion may have reached 80% or higher.[13]

D Court and Judge Differences

Insert Table 9: Court and Judge Differences

Table 9 offers some Chapter 11 statistics by judge, which will be explored as fixed effects in subsequent tables.[14] Many differences among judges were probably idiosyncratic case noise, but some differences are remarkably stark: For example, AZ Judge Baum handled fairly large cases ($7.5 million), but allowed much higher expenses than, say, AZ Judge Curley ($5.9 million): 12% vs. 4%. AZ Judge Nielsen handled the largest cases ($79.5 million). Remarkably, he did so much faster than

[13] **Conversions:** Recovery rates for Chapter 7 conversions from Chapter 11 do not differ statistically from pure Chapter 7 cases. The mean recovery rate for secured creditors was 12.75% (median=0%), and the mean recovery rate for unsecured creditors is 2.20% (median 0%). In total, creditors recover 4.3% of their total claims (0% in median), and 28.32% (4.78% in median) if we assume the maximum recovery by senior of 2.6 times pre-bankruptcy assets. Relative to the Post-Banruptcy value of the assets, creditors receive 11.74% (median 0%). The rest is fees.

[14] Future research can explore judges' personal characteristics and how many cases they have to handle. Age, Time on Bench, Gender, # of employees.

other judges (481 days vs. 764 days), but he violated APR in 2 out of his 5 cases and creditors received less (93%) than they did on average (96%).

In NY, Judge Garrity handled large cases ($38.4 million), adhered strongly to APR, but also allowed very high expense ratios (above 100%!). NY Judge Burton Lifland, notorious for his creditor violations in earlier bankruptcies (such as that of Eastern Airlines), both stuck to APR in our sample and managed to keep expenses relatively modest.

V Summary of Descriptive Evidence

One goal of our paper is to provide a set of empirical regularities for future reference. Our findings were:

- AZ and NY bankruptcy cases were remarkably similar in most dimensions, e.g., asset size.
- Chapter 7 cases were not only smaller on average, but their distributed final assets shrunk considerably relative to declared pre-bankruptcy values. Chapter 11 cases had higher post-bankruptcy pre-expense asset retention ratios. Some evidence suggests that Chapter 11 value estimate are reliable (post-bankruptcy value is close to pre-bankruptcy value), but others give reason for concern (many firms fold later).
- Bankruptcies of either type took around 2–3 years. Chapter 7 was a little quicker than Chapter 11, although comparably sized Chapter 11 cases took about equally long.
- The three phases in Chapter 11 (defined by entry, plan filing, confirmation, and exit) took about equally long.
- If measured in terms of assets at bankruptcy opening, bankruptcy expenses were similar in Chapter 7 and Chapter 11. If measured in terms of assets at bankruptcy closing, bankruptcy expenses were significantly higher in Chapter 7 than Chapter 11. NY Chapter 11 cases were more expensive than AZ Chapter 11 cases. (We also detail the expense components.)
- Bankruptcy courts approved virtually all legal reimbursement requests.
- In Chapter 7, unsecured creditors overwhelmingly receive nothing. In Chapter 11, unsecured creditors tend to receive one-quarter to one-half of what they are owed.

- Overall, Chapter 7 cases left creditors worse off than Chapter 11 cases.
- Presiding judges were associated with large heterogeneity in outcomes and expenses.
- In virtually all respects, there is significant heterogeneity among bankrupt firms. Theorists would be well advised not to claim either uniformly low or uniformly high bankruptcy costs, but to recognize that bankruptcy costs are modest in some firms, and large in other firms.

VI Multivariate Analyses

We now explore the determinants of bankruptcy costs. To be included in the regressions, we had to be able to locate the declared asset value both upon entering bankruptcy, and upon the end of bankruptcy.

A Determinants of Choice of Procedure

Insert Table 10: Procedure Choice

Table 10 investigates if different firms are in different bankruptcy modes: whether or not to have a creditors' committee, whether they filed voluntarily or involuntarily, and whether they filed for Chapter 7 or Chapter 11. Although these choices are not the focus of our work, they are endogenous, and could bias our results, especially the choice of Chapter. In later regression, we will thus control for the choice of bankruptcy chapter (7 or 11). We also experimented with endogeneity control for the other two choices (committee and who filed), but this ultimately mattered little, so it is omitted.

Creditors' Committee. The left probit investigates when a creditor committee (representing unsecured creditors) is formed. Under Sections 1102 and 1103 of the Code, the trustee shall appoint a committee of creditors consisting of the persons that had the 7 largest claims against the debotr. The committee has the right to employ attorneys, accountants, and other experts. The committee choice is empirically very predictable, but not necessarily with the variables we had thought to be important. The largest firms, firms in NY, and firms that are more underwater are

more likely to have creditor committees. Remarkably, the actual unsecured creditor structure does not matter how we had expected it to matter: it is not related to the plain number of unsecured creditors. It is related to some other measures of creditor structure. For example, the secured creditor structure matters: Firms with a higher number of secured creditors are more likely to have a committee, and less secured debt as a ratio of total debt (and therefore with more unsecured debt) are more likely to have an unsecured creditor committee. More intuitive is the finding that courts are more reluctant to appoint a creditor committee when a bank is among unsecured creditors.

We estimated a bivariate probit for choice of chapter and petition origin. (Bivariate Probit or Univariate Probit mattered little, either.)

Petition Source. The middle regression in Table 10 predicts whether a firm files voluntarily for protection, or whether creditors forced bankruptcy. Only one variable is marginally significant: firms with more secured creditors were more likely to file themselves.[15] In later regressions, we experimented with (endogeneity) control for who petitions, but found that this makes no difference.

Bankruptcy Chapter. The most important choice of a bankrupt firm is whether to file for Chapter 7 or Chapter 11. If there is strong identifiable self-selection, then it can be misleading to compare the cost of procedures, without controlling for endogeneity of of procedure.

The right-most regression in Table 10 shows that the choice of procedure is indeed correlated with a whole range of firm characteristics: Firms are more likely to file for Chapter 11 when they are larger,[16] when they are in AZ, when managers own more equity, when they have more secured creditors but less secured debt, and when they have do *not* have a bank among their creditors.

We therefore control for endogeneity of Chapter choice in subsequent regressions, using this probit regression as our first-stage. We also experimented with

[15] Section 301(a) of the Code requires at least three secured creditors that are out of the money. Their claims must aggregate to at least $10,000 more than the value of any lien on property of the debtor securing such claims in order for an involuntary petition to be filable by these creditors. If there are fewer than 12 secured creditors, the petition can be filed by one or more of such holders who holds in the aggregate at least $10,000 of such claims.

[16] The multiplicity of asset size controls makes this difficult to see. It is easier to see in the figures, which show that the smallest firms disproportionally chose Chapter 7, and the largest firms disproportionately chose Chapter 11. Reducing the number and type of asset controls makes no difference in later results.

first-stage probits that relied on fewer, more carefully chosen variables; with a univariate probit for Chapter choice only; and with probits that focused only on observations used in a particular second-stage regression. Such first-stage variations make little or no difference in the second-stage regression results reported below.[17]

B Determinants of Bankruptcy Length

B.1 Overall

Insert Table 11: Overall Duration of Bankruptcy

Table 11 explains the log of the time in bankruptcy with available bankruptcy measures. (Footnote 1 described our handling of unclosed cases.) It also introduces the format used in our regression tables. The plain OLS regression on the left includes the *actual* choice of Chapter as a control dummy. Its coefficient measures *both* the induced duration effect when firms which choose one Chapter may intrinsically require more time to execute bankruptcy, *and* the direct duration effect when one type of Chapter just takes more time to execute than another. The remaining regressions seek to disentangle these two effects by relying on the predictions from the procedural choice probit regressions from Table 10. The "treatment effects regression" uses both Chapter 11 and Chapter 7 cases. The "Heckman" regressions use only the Chapter 11 cases, although they rely on the first-stage probit regressions, too. In both treatment and Heckman regressions, the coefficient on the Mills ratio measures the effect which is due to intrinsic firm differences (self-selection). In the treatment regressions, the coefficient on the Chapter 11 instrumented dummy measures the effect that is due to the pure direct procedural difference itself.

As independent variables, we usually include: assets and assets squared (to avoid capturing non-linear size effects inadvertently through other variables); the degree to which the firm is underwater; the fraction of debt that is secured; the number of creditors, both secured and unsecured; whether creditors, secured or unsecured, include a bank; whether the firm or creditors initiated bankruptcy; how much ownership management holds; whether the firm has a creditors' committee; whether the

[17] In retrospect, this may not be too surprising. O.L.S. is fairly robust to endogeneity in terms of its coefficient estimates *other* than the coefficient estimate of the specific first-stage procedural choice variable itself. It is the case in Heckman (1979), and it is the case here.

bankruptcy is in AZ; and, in the rightmost regressions, we control for fixed effects caused by differences in judges.

In Table 11, the plain OLS regression indicates that firms that are in Chapter 11 take longer than firms that are in Chapter 7. The coefficient of 0.264 on the dummy suggests that the effect is both statistically and economically meaningful, explaining about $0.264 \cdot 1/0.605 \approx 44\%$ of the cross-sectional heterogeneity in bankruptcy length. *However*, the estimated coefficient for procedure choice halves when we control for endogeneity, which eliminates all statistical significance. Therefore, although Chapter 11 cases took statistically significantly longer to resolve, this was due partly to the types of firms that chose Chapter 11 and partly due to the procedure itself. We cannot reliably disentangle the two effects in our sample.

The OLS regressions also indicate that cases with more secured creditors take longer to unwind, but self-selection control eliminates the statistical significance of this effect. Among other variables, only the percent of equity owned by management might play a role (further explored in Table 12 below). The particular judge chosen appears to matter, although there is no difference between AZ and NY.

Firm size plays an interesting role: it does not reach statistical significance in plain OLS regressions, although the estimated economic magnitude of the size influence is not modest. Only after we control for judge fixed effects among Chapter 11 cases do we find that larger firms take more time. To assess the economic significance of assets, realize that the two asset term coefficients imply that the relation between assets and bankruptcy length is negative for firms smaller than \$115 in assets, and positive for firms bigger than \$115 million in assets.[18]

B.2 Chapter 11 Phases

[18] Solving $\frac{\partial}{\partial x}(2.2 \cdot 10^{-5} \cdot x^2 - 0.005 \cdot x) = 0$ yields $x \approx 113.6$. Holding everything else constant, the Chapter 11 process seems to be tuned to most quickly handle firms around \$100 million. Cases that are much smaller may not get as much priority or legal support; cases that are much larger may be too complex to easily unwind. But reader beware: even when statistically significant, we only have about a dozen cases in our sample with assets above \$100-\$200 million. For the inference on the turning point, we had to lean (too) heavily on the quadratic specification, though.

Insert Table 12: Duration of Bankruptcy Phases:
A=filing-plan; B=plan-approval; C=approval-emergence.

Table 12 explores the lengths of the three individual Chapter 11 phases: from filing to plan (Panel A), from plan to approval (Panel B), and from approval to emergence (Panel C). (We cannot identify distinct Chapter 7 phases.) One important finding is one of non-significance: In all three panels, the Mills ratios show that there is no evidence that firms that were more likely to self-select into Chapter 11 were any faster or slower in completing any of the three phases. A second important finding is that the identity of the judge matters in all three phases. If we add a dummy for Chapter 11 to Chapter 7 conversions (not reported), we find that these take 0.47 log-time units longer (p-value of 3%). At the realized values, this implies that a conversion takes about one-year longer than a non-conversion.

Table 12 offers further interesting findings:

Filing To Plan. Panel A shows that the most robust predictor of the length of the first phase is the percent of equity held by management. When management owns more of the firm, the first phase tends to drag on. This may indicate that managers with more of their own money at stake "play the option" of keeping the firm alive, and are reluctant to resolve the bankruptcy. A one-standard deviation in the percent equity owned by the managers (45) can explain a difference of about $0.0073 \cdot 45 \approx 0.32$ in the dependent variable (log-time). This is about one quarter of the standard deviation of the dependent variable.

In this first phase, asset size again matters in the non-linear fashion previously described. Plans are submitted most quickly by firms that claim to be around $150 million in assets. Smaller and bigger firms are estimated to take more time.

If we control for judge, the presence of a creditor committee seems to slow down the process: it may take time for the committee to become established. Without judge control, the estimated coefficient remains similar, but drops below ordinary statistical significance levels.

Plan To Acceptance. Panel B shows that after courts have received the plan, the dynamics change: both managements' owner stake and firm size become irrelevant.

Instead, it is the coordination of unsecured creditors that determines how fast the plan is accepted. First, firms with more unsecured creditors take longer to

resolve. A one-standard deviation higher number of unsecured creditors (476) implies an estimated change of $476 \cdot 0.0006 \approx 0.3$ in the dependent variable (log-time), which is about one-third of the dependent variable's standard deviation. Second, the presence of a creditors' committee now speeds up the resolution: about 0.43 fewer log-days, which is about half the dependent variable's standard deviation.

If we control for judge heterogeneity, two other variables become important: the relative amount of secured debt, and whether there is a bank among the unsecured creditors.

Acceptance to Emergence. The third bankruptcy phase is mostly about plan implementation and expert reimbursement. As reported in Appendix Table A, its length has modest negative correlation with the lengths of the first two phases (-15%, statistically significant at the 10% level).

Panel C shows that after the plan has been confirmed, the managerial equity stake again does not matter. The only variable with significance is that cases with a creditor's committee seemed to take longer to emerge. There is a hint that if there is a bank among the secured creditors, this phase takes longer, but statistical significance drops just below conventional significance if we control for judge. However, if controlled for judge, more indebted firms and firms filing voluntarily also take longer to resolve.

Summarizing the role of the creditors' committee, it appears that its presence speeds plan approval, but slows plan filing and plan execution.

C Determinants of Court-Declared Expenses

Insert Table 13: Total Bankruptcy Expenses/Pre-Assets

Table 13 explores the determinants of asset-normalized court declared expenses. (The fraction of the firm captured by creditors is one minus this number.) All reported cross-sectional results are robust if we normalize by end-of-bankruptcy value, rather than by start-of-bankruptcy assets.

Our most important finding concerns the role of the choice of procedure. In the OLS regression, the Chapter 11 procedure choice variable is positive and just barely below conventional statistical significance: Chapter 11 cases had higher expense

ratios. However, if we control for endogeneity, we find that Chapter 11 cases consumed more fees proportionally, not because Chapter 11 is intrinsically the more expensive procedure, but because self-selecting Chapter 11 firms intrinsically require more expenses. The Mills ratio is highly statistically significant, and can explain just about half of the standard deviation of the dependent variable. The coefficient estimate for the "Instrumented Chapter 11 Procedure" in the *Treatment Effects* regression suggests that Chapter 11 *saved* about 1.1 percent in asset-normalized fees, which is just about the standard deviation of the dependent variable (0.9).

Surprisingly, Table 13 shows that controlling for other case characteristics renders asset size irrelevant. (Jointly, the asset variables are not statistically significant.) Similarly, the presiding judge's identity, which did robustly matter for duration, does not matter in terms of expenses.

If we control for self-selection, firms that are more underwater and firms that have relatively more secured debt required more bankruptcy expense. A one-standard deviation higher log-debt-to-asset ratio (1.3) predicts about 0.4 percent more in fees. Although not reliably significant, there are good hints that the presence of banks seems to have reduced costs.[19]

Insert Table 14: Bankruptcy Expenses Relative to Total Liabilities

Table 14 measures expenses relative to claims, which is more robust with respect to estimates of firm value. However, we do need to include assets as a control variable: the degree to which a firm seems to be underwater. The main result looks remarkably similar to the result in Table 13: The most and only robustly significant important predictor of expense ratios is the type of firm (the Mills ratio). When controlled for, the Chapter 11 instrument again becomes negative, but drops just below statistical significance. At unconventionally low significance levels, the indication is again that Chapter 11 is the cheaper procedure for those firms that selected it.

[19]The estimated coefficients are large, suggesting as much as a 45 basis point drop in fees if a bank was present. However, even if we combine bank presence into one variable, it remains statistically insignificant.

Insert Table 15: Expenses by Party

Table 15 decomposes Chapter 11 expenses into those incurred by the debtor and those incurred by the unsecured creditor. (Chapter 7 cases do not have separate expenses. Secured creditors are not reimbursed by the court, and therefore do not file their expenses.) We focus primarily on variables that remain robust if we predict the use of expense ratios quoted in post-bankruptcy assets.

The Mills ratio again indicates that self-selection is an important component of *both* debtor expenses *and* unsecured creditor expenses. Firms with intrinsically higher expense ratios disproportionally select into Chapter 11.

The only other variable that reliably reduces the expense ratio of the debtor is the presence of a bank, first and foremost among the secured creditors. Banks do seem to be able to make bankruptcy less costly for the DIP, but the standard deviation of bank presence is so low that reliable economic significances would be problematic. Other variables are not robust predictors, either if we control for self-selection and/or if we quote post-bankruptcy asset expense ratios.

Equally interesting, the only other variables that reliably influence the expense ratio of the unsecured creditors is whether they are organized into a committee (in which case they spend more), and if managers own less equity (in which case they spend less). A creditor committee raises the costs of the unsecured creditors by about 0.14 percent (which is almost 80% of the variation in unsecured creditor expenses).[20]

Neither judicial identity nor asset size matters, once other factors are controlled for.

[20]The estimated coefficient indicates that the creditor committee's presence also reduces the debtor expenses, although this is not significant once we control for endogeneity.

D Determinants of Recovery Rates

Recall that we have solid data on recovery rates of unsecured creditors in both Chapters, solid data on secured recovery in Chapter 11, and really only guestimates of secured recovery in Chapter 7.

Insert Table 16: Total Recovery Rate by Creditor
Panel A=secured. Panel B=unsecured. Panel C=total

In Table 16, we explore the determinants of the recovery variables that we can solidly measure.

Panel A explores secured creditor recovery in Chapter 11. Not surprisingly, creditors in firms that are more underwater recover less. Asset size matters non-linearly, as well. Panel A also indicates three more interesting determinants: First, the identity of the judge matters. Second, when the debtor spends more, secured creditors receive less. A one-standard deviation in debtor expense ratio (1.1) predicts about a $-20 \times 1.1 \approx 22$ percent variation in secured recovery (slightly more than one standard deviation). Third, if the unsecured debt includes a bank, secured creditors receive less. The magnitude of the effect is sensitive, though, ranging from 0.29 standard deviations to 0.71 standard deviations.

Panel B explores unsecured recovery in Chapters 7 and 11. Again, not surprisingly, creditors in firms that are more underwater recover less. Asset size is, on the margin, irrelevant: it is subsumed in other characteristics. There are interesting determinants here, too: First, and most important to us, Chapter 11 cases offer higher much recovery rates. The coefficient estimate suggests an influence in excess of 50%! (The standard deviation of the dependent variable is only 40%.)[21] Second, the identity of the judge again matters. Third, unsecured creditors recover relatively more when there is a bank among them, and when there are fewer secured creditors.[22] Fourth, in bankruptcies in which an unsecured committee existed, unsecured creditors received less, but this is driven by self-selection: cases in which unsecured would receive less tend to also establish a committee. If we control for committee establishment endogeneity, the T-statistic drops to 0.9 (not reported).

[21] The Mills ratio (endogenous selection) is not significant, although it hints at a mild selection effect.

[22] Among Chapter 11 cases, Arizona cases seemed to have lower recovery rates.

Insert Table 17: Total Proportional Recovery

Table 17 explores the total creditor recovery rate, relative to the initial claim. The dependent variable in Chapter 7 is necessarily based on our assumption of high secured creditor recovery. Therefore, the left two regressions are not altogether trustworthy.

Of course, firms that are more underwater pay out less. We include both a linear and a non-linear factor to control better for this rather obvious effect. (The estimated coefficients imply a negative slope for virtually all firms.) Similarly, asset size matters. The estimated coefficients suggest that creditors enjoyed the highest recovery rate in firms with assets of around $180 million.

The most important finding is that Chapter 11 cases had higher recovery rates than Chapter 7 cases. This is due both to the fact that firms choosing Chapter 11 have intrinsically higher recovery, and to the fact that Chapter 11 leaves creditors with more assets.

Cases with relatively more secured debt also provided more recovery: an 0.30 coefficient implies that a one-standard deviation difference in the secured debt to total debt ratio (0.356) has an effect of about 10%. (This is about one-third the standard deviation in recovery rate.) The presence of a creditors' committee is associated with 13% less recovery. Arizona cases had 10% lower recovery on average. Judge heterogeneity mattered.

E Determinants of APR violations

Insert Table 18: APR violations and APR adherence index

Table 18 explores APR violations in Chapter 11, a dummy in Panel A (1 if *both* secured creditors do not receive 100% *and* unsecured creditors receive something), and an continuous index in Panel B (0 under APR, 1 under purely proportional allocation). There are no APR violations in Chapter 7.

- APR violations are strongly judge specific. The 'Judge Dummies' in the regression are highly significant.

In rough order of importance, APR is more likely violated

- by AZ judges than NY judges (a 15% implied difference);
- when there is more secured debt (priority is easier to be satisfied when secured debt is small; an implied 12% effect for a one-standard deviation [0.3] difference);
- and when there is less money to satisfy creditor claims (an implied 12% effect for a one-standard deviation [0.3] range);
- when there are more unsecured creditors and fewer secured creditors, suggesting that dispersion aids creditors, concentration harms creditors (implied effects of about 6% each). This is consistent with the views in Bolton-Scharfstein (1996) and inconsistent with Bris-Welch (2004). The latter should thus be seen as applying more to creditors for whom the claims are so small, that they do not come forth.

Not significant in Panel B, but in Panel A, APR is more likely violated

- when the case is brief;
- when management owns more equity (we do not have violations in favor of equity, but violations in favor of unsecured creditors may go hand-in-hand with violations in favor of equity and thus managers);

There is also evidence that APR is violated less when unsecured creditors spent *more*; this is likely due to endogenous self-selection, but, being a continuous variable, not controllable for.

F Summary of Multivariate Findings

It is important to be careful when drawing inferences: in this kind of corporate context, almost everything is endogenous. For some variables, specifically the choice of procedure (Chapter 7 vs. Chapter 11), we could use common endogeneity control procedures, but much of our identification has to rest on our theoretical priors. In interpreting our results, the reader should be aware that we have only correlations, not causal relations. Our most significant and robust findings are that:

- Although actual proportional fees were higher in Chapter 11 cases, this was entirely due to endogeneity. After control for (statistically significant) self-selection, Chapter 11 emerges as the cheaper mechanism. (Chapter 11 is more frequent when the firm is larger, when managers own more of the firm, when there is no bank among creditors, and when the debt is mostly unsecured and/or any secured debt is dispersed.)
- Judge identity matters in determining case duration, recovery rates, and APR violations, but not in determining costs; virtually all submitted expenses are granted.

Further,

- The more underwater the firm, the costlier the bankruptcy. Having a relatively higher secured debt ratio also increased cost.
- Across regressions endogeneity (self-selection) for procedure choice was also important as a control in expense ratios for both debtor firm and unsecured creditors in Chapter 11; and for realizing that we could not determine the cause of the longer duration of Chapter 11 cases. That is, although Chapter 11 cases took longer to resolve, we cannot reliably disentangle whether this was due to firm type or due to procedure length. Most likely, it was due to both.
- In Chapter 11, where we could identify the length of the individual phases:
  - **Filing-To-Plan**: Managers with more equity stake delayed filing the plan. Further, the presence of a creditors committee slowed the process, and firms with assets of around $150 were quickest.

- **Plan-To-Acceptance**: The number of and type of organization of creditors influenced the speed with which courts approve plans: More (unsecured) creditors, especially with a bank, required more time, a creditor committee reduced the time.
- **Acceptance-To-Close**: Firms that are more underwater and which have a creditor committee take longer to close.

So, a creditor committee speeds up Chapter 11 plan confirmation, but slows down filing and closure. Bigger cases did not necessarily take longer. When managers owned more equity, overall resolution was slower.

- Among Chapter 11 firms, the presence of banks and a creditor committee reduced debtor legal expenses. The presence of the latter increased unsecured creditor expenses. Creditor self-selection matters.
- Aside from the obvious effect that firms that are more underwater pay out less to creditors, creditors enjoyed more recovery (relative to their initial claims) in cases in which more loans were secured, and less recovery in cases in which there was a creditors' committee or Arizona cases. Creditors tended to fare best in cases in which assets were around $180 million.
  - Secured creditors had higher recovery rates when the debtor firms had lower legal expenses, and when unsecured debt did not include a bank.
  - Unsecured creditors had higher recovery rates, when there were fewer secured creditors and better when unsecured debt included a bank.
- APR violations are judge-specific. Further, APR is violated more often
  - the less concentrated secured creditors are;
  - the more concentrated unsecured creditors are.
  - when it is less easy to satisfy secured debt (more secured debt and lower total recovery);
  - the higher the amount expended by the debtor, and the lower the amount expended by the secured creditors.

VII Overall Conclusion

Our paper has put together and explored the most comprehensive database of bankruptcy to-date. Relative to earlier work, this has allowed us to broaden our perspective beyond just those for large publicly traded companies. We find that Chapter 7 is not any more efficient than Chapter 11, and by many metrics seems more expensive. On average, Chapter 7 takes almost as long, and consumes no less in professional fees. (Indeed, controlling for endogenous choice of procedure, Chapter 7 takes as long and consumes more in professional fees.) Creditors seem to rarely receive much in Chapter 7, in stark contrast to creditors in Chapter 11. But theorists should recognize that the heterogeneity in bankruptcy costs is enormous. In sum, our findings imply that Chapter 7 has little advantage over Chapter 11 within the U.S.

We also find that management ownership reduces the speed with which management files a reorganization plan, that endogeneity control is essential for drawing inferences about the relative costs of procedure, and that creditor committees and banks can play conflicting roles.

The most recent comprehensive study of bankruptcy appears in Thorburn (2000), and our conclusions differ so considerably that some extra explanation is in order. Both studies explore bankruptcy procedures that are essentially cash auctions (the Swedish system and our U.S. Chapter 7 cases). She finds that this system works very efficiently, while we find it does not: The Swedish procedure has slightly higher direct costs than U.S. Chapter 7/Chapter 11, but takes only 2.4 months to complete, versus our Chapter 7 procedure's 23 months. This is even more surprising because our sample Chapter 7 cases are *smaller* than their Swedish counterparts (median assets of $0.11 million vs. $1.3 million).[23]

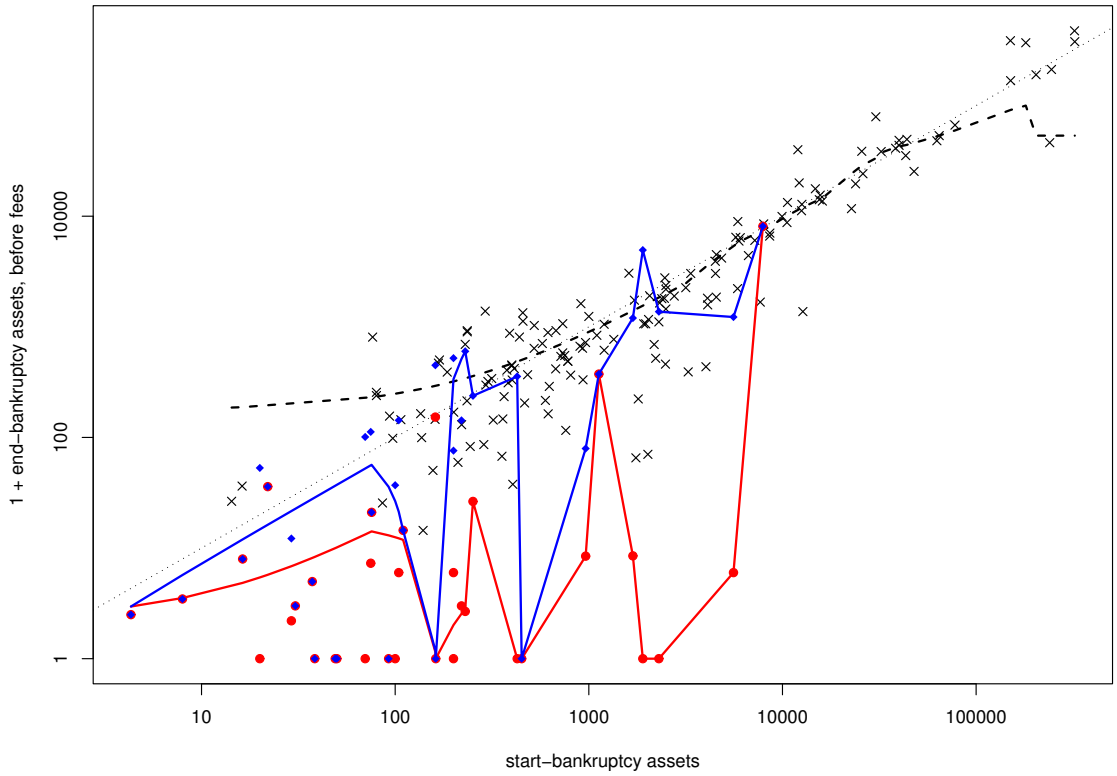
There are at least four possible explanations. First, the majority of the Swedish bankrupt firms (74% of sample firms in Thorburn 2000) are sold as "going concerns." The appointed trustees have to run the business until the case is closed. Being time-constrained and attention-constrained running multiple bankruptcies at the same time may motivate the trustees to sell the bankrupt firm sooner rather than later. U.S. firms in Chapter 7 cases usually cease as going concerns immediately after the U.S. trustees take over. The trustee's major responsibility is primarily to oversee

[23] It is possible that related parties lack enough incentive to move fast on the liquidation.

and liquidate the remaining assets rather than manage the bankrupt firm. Second, the speed at which the Swedish trustees handle cases directly influences their reputations and future employment (Stromberg [2000, p.2647]). U.S. trustees are generally *not* judged by the speed that they handle cases. Third, Swedish Bankruptcy Law forbids running the firm's operations for more than one year, except under extraordinary circumstances and only if the court approves it (Stromberg [2000]). The U.S. has no limit on the length of the proceedings. Fourth, there are myriad other economic and non-economic differences between these countries, ranging from judicial, to cultural differences.

VIII Tables and Figures

Figure 1. Pre-Bankruptcy vs. Post-Bankruptcy Assets



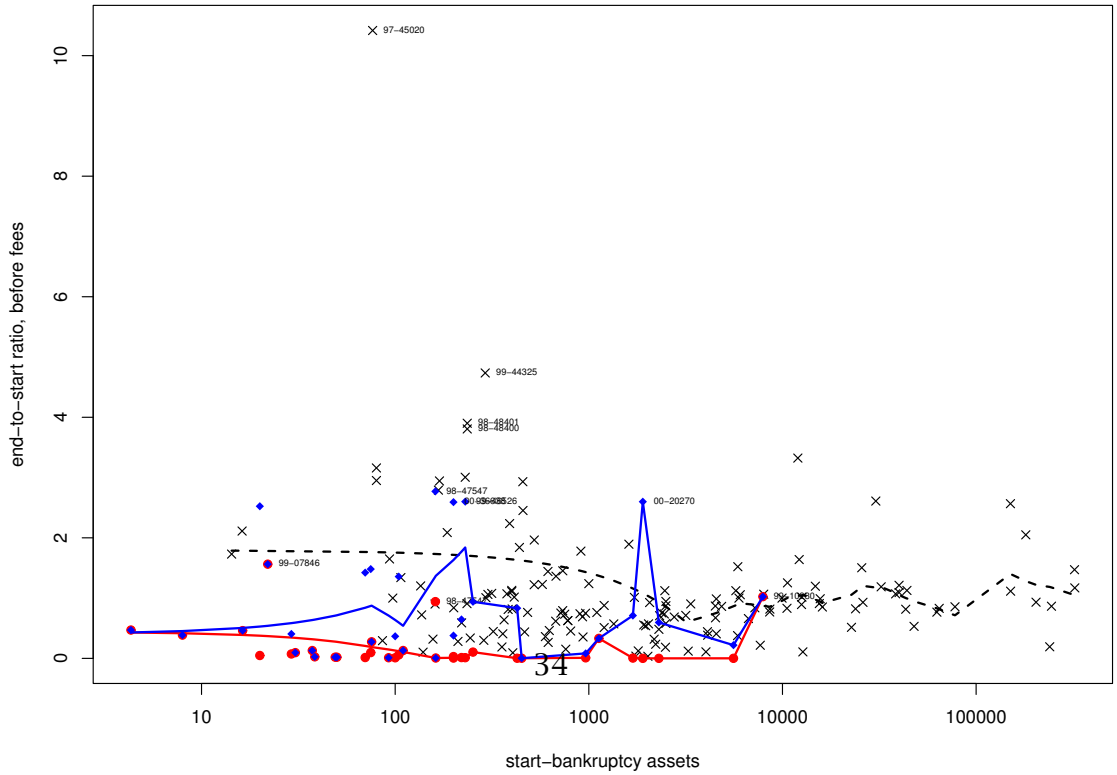


Figure 2. Bankruptcy Duration

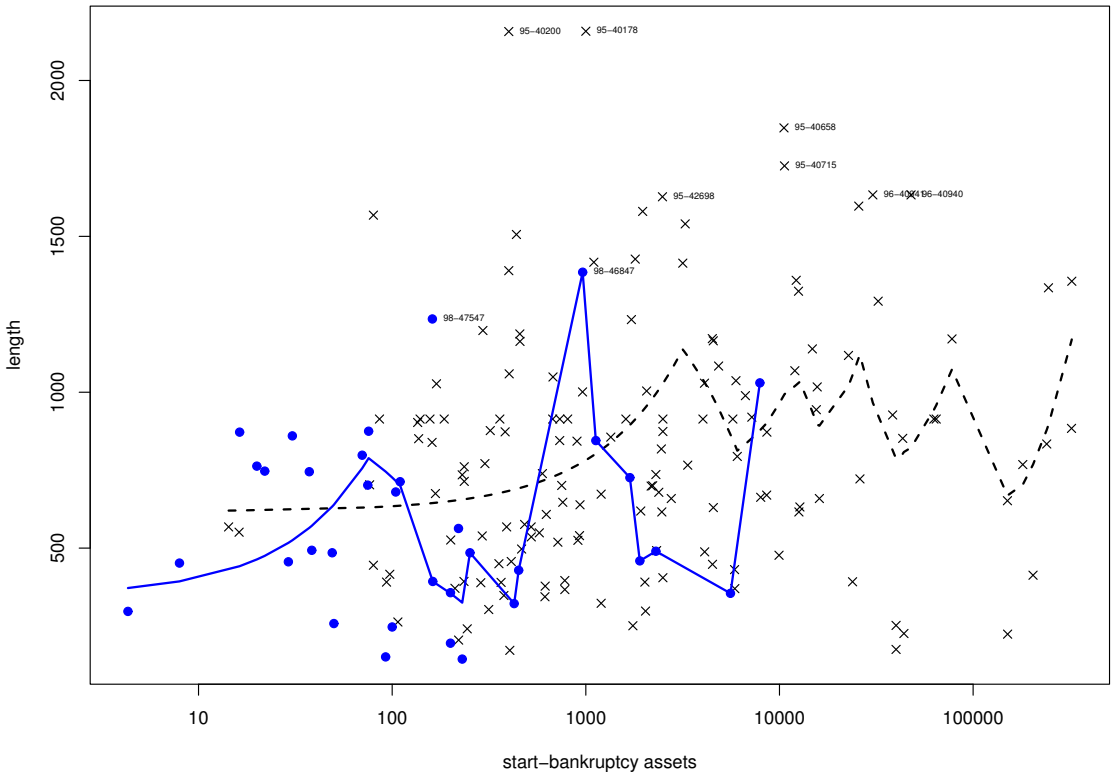
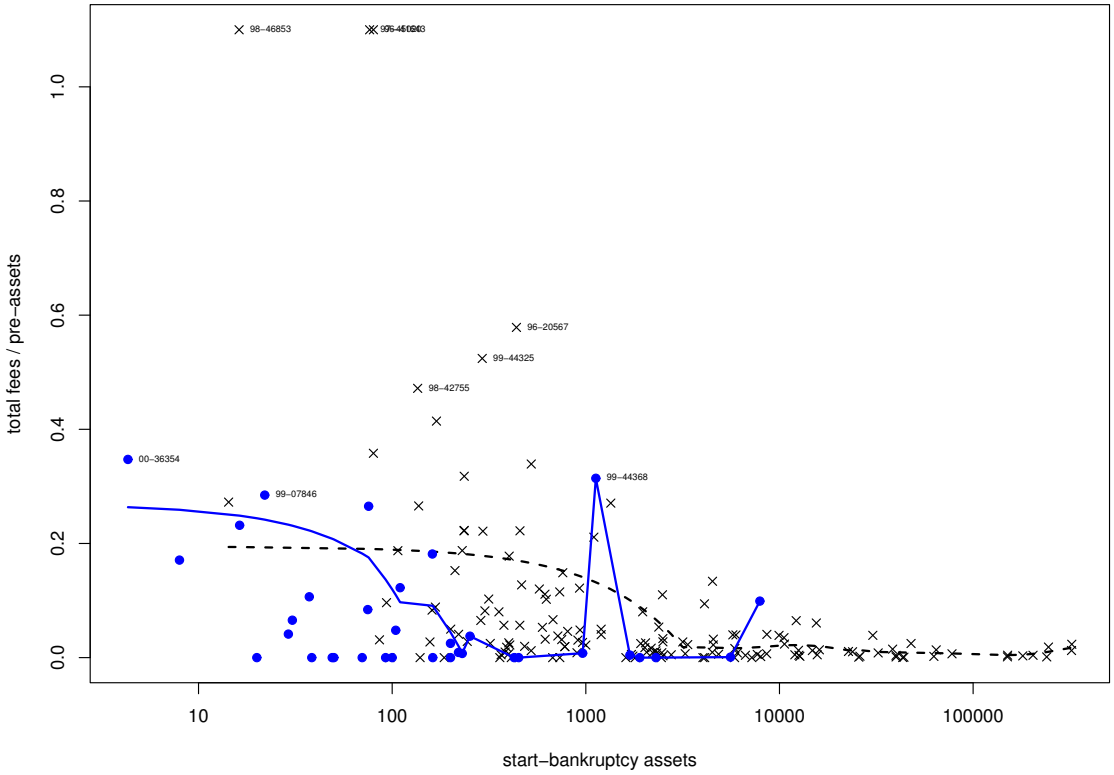


Figure 3. Fees Ratios and Post-Fee Asset Ratios



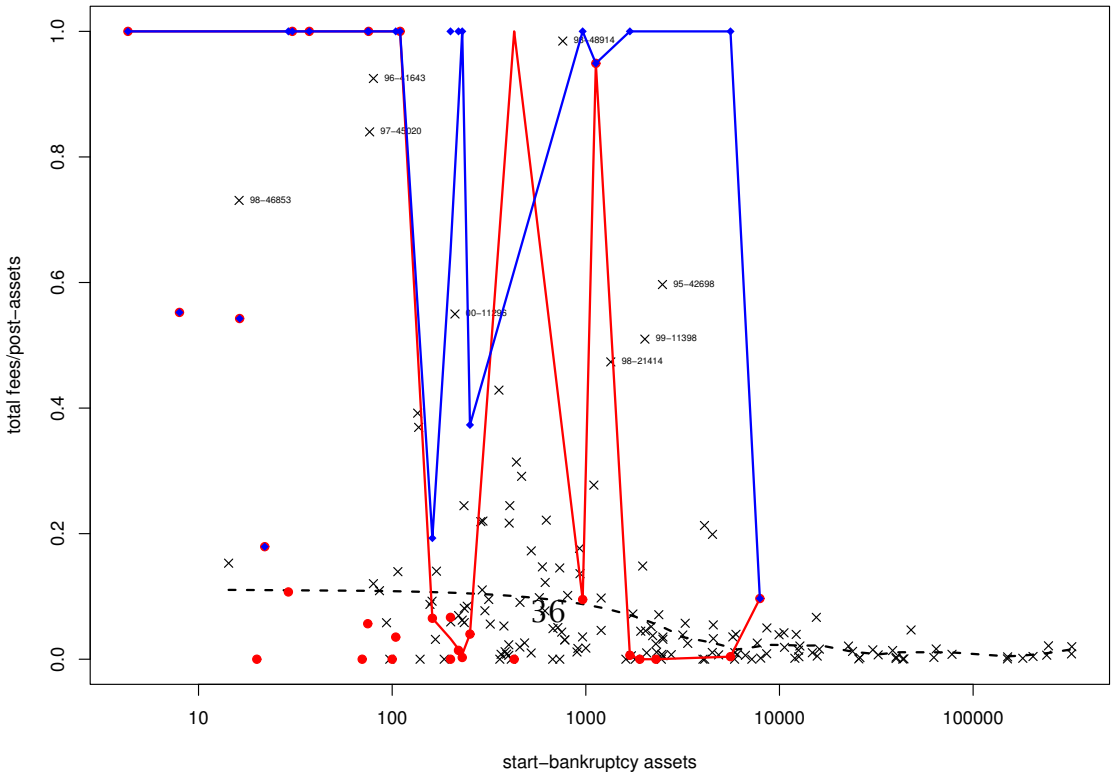
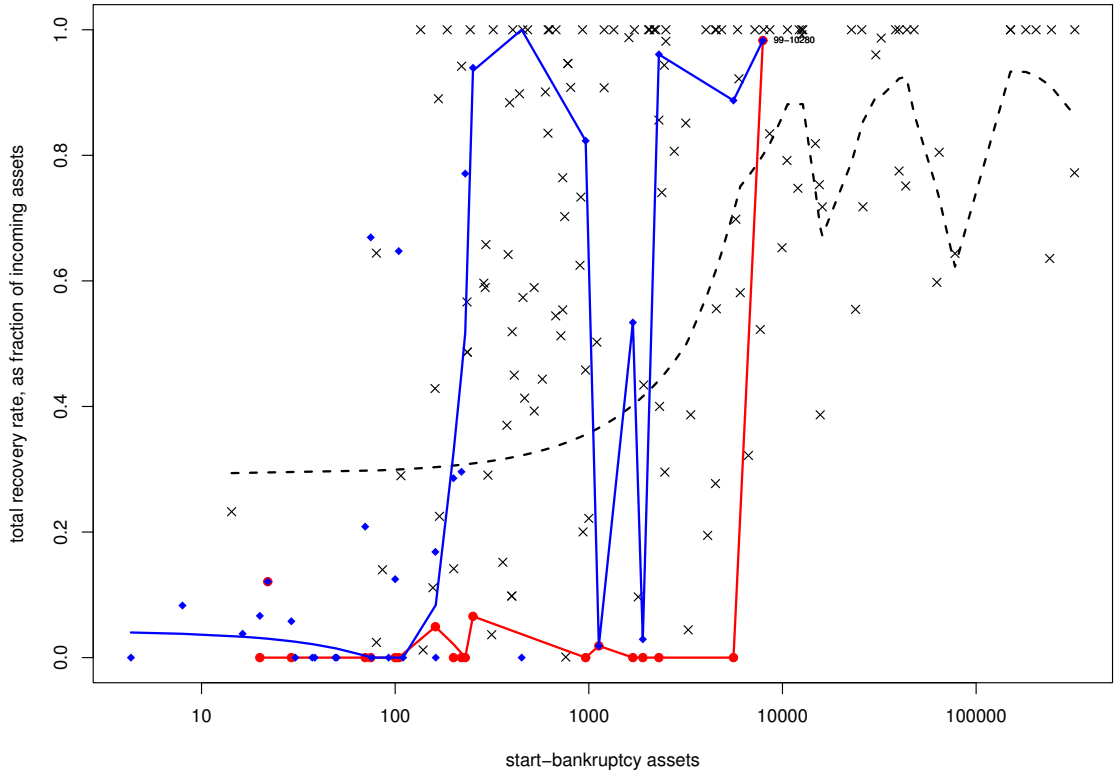
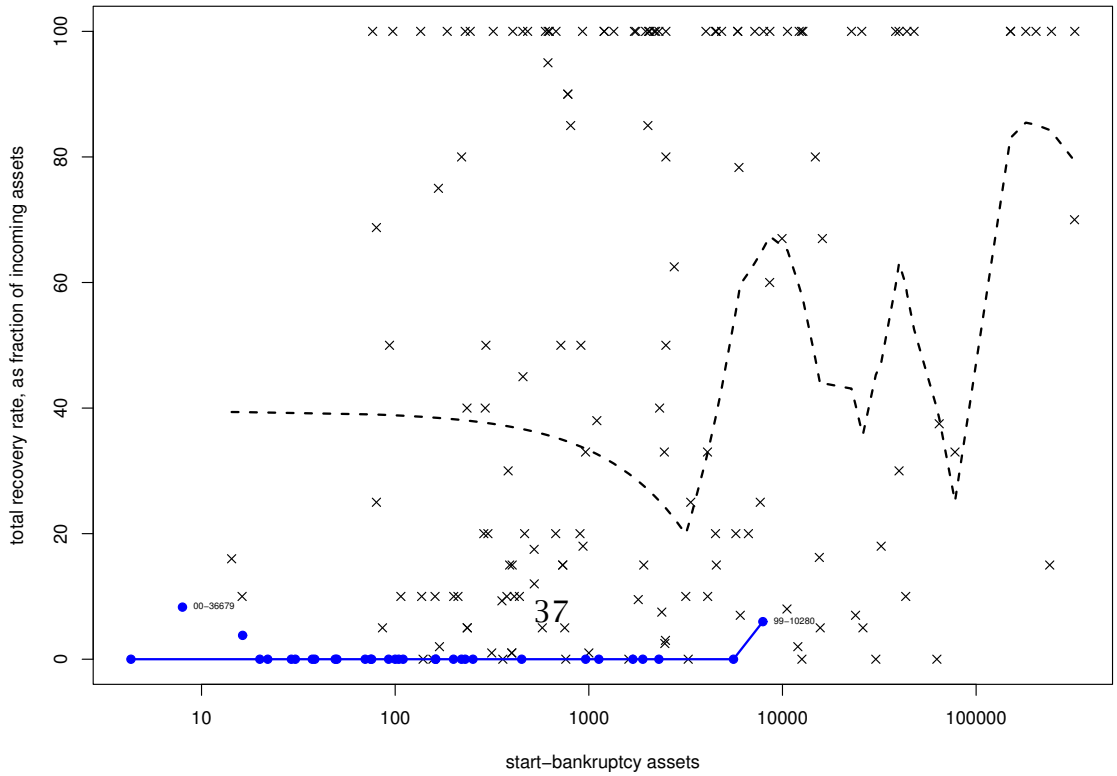


Figure 4. Creditor Recovery Rate





Insert Table A: At-Bankruptcy Assets, Post-Bankruptcy Assets

Insert Table B: Correlation Matrix of Variables

Insert Table C: Outcome of Chapter 11 cases

References

[1] Alderson, Michael J. and Brian Betker, 1995, Liquidation Costs and Capital Structure, *Journal of Financial Economics* 39, 45-69.

[2] Altman E., 1984, A Further Empirical Investigation of the Bankruptcy Cost Question, *The Journal of Finance* 39-4, 1067-1089.

[3] Altman E., and S. Nammacher, 1984, The Default Rate Experience of High Yield Debt, *Financial Analyst Journal* 41, 25-41.

[4] Ang, James S., Jess H. Chua, and John J. McConnell, 1982, The Administrative Costs of Corporate Bankruptcy: A Note, *The Journal of Finance* 37, 219-226.

[5] Betker, Brian, 1995, Management's Incentive, Equity Bargaining Power and Deviation from Absolute Priority in Chapter 11 Bankruptcies, *Journal of Business* 68, 161-184.

[6] Bolton, Patrick and David Scharfstein, 1996, Optimal Debt Structure And The Number Of Creditors, *The Journal of Political Economy* 104-1 (February), 1-25.

[7] Bris, Arturo, and Ivo Welch, 2003, "The Optimal Concentration of Creditors." Working Paper, Yale.

[8] Eberhart, A., W. Moore, and R. Roenfeldt, 1990, Security Pricing and Deviations from Absolute Priority Rule in Bankruptcy Proceedings, *The Journal of Finance* 45-5 (December) 1457-1469.

[9] Franks, Julian R, and Walter Torous, 1989, An Empirical Investigation of U.S. Firms in Reorganization, *The Journal of Finance* 44, 747-769.

[10] Franks, Julian R, and Walter Torous, 1994, A Comparison of Financial Recontracting in distressed exchanges and Chapter 11 Reorganizations, *Journal of Financial Economics* 35, 349-370.

[11] Gilson, S. C., K. John, and L. H. P. Kang, 1990, Troubled Debt Restructurings: An Empirical Analysis of Private Reorganization of Firms in Default, *Journal of Financial Economics* 26, 315-353.

[12] Gilson, Stuart C., 1997, Transaction Costs and Capital Structure Choice: Evidence from Financially Distressed Firms, *The Journal of Finance* 52, 161-196.

[13] Heckman James J., 1979, Sample Selection Bias as a Specification Error, *Econometrica* 47, 153-161.

[14] Hotchkiss, E.S., 1995, Post-Bankruptcy Performance and Management Turnover, *The Journal of Finance* 50-1 (March), 3-21.

[15] Lawless, R., S. Ferris, N. Jayaraman, and A. Makhija, 1994, A Glimpse at Professional Fees and Other Direct Costs in Small firms Bankruptcies, *University of Illinois Law Review* 4, 847-888.

[16] Lopucki, L., 1983, The Debtor in Full Control - Systems Failure Under Chapter 11 of the Bankruptcy Code, *American Bankruptcy Law Journal* 57-3 (April), 99-126 and 247-273.

[17] LoPucki Lynn M., and Joseph W. Doherty, 2004, The Determinants of Professional Fees in Large Bankruptcy Reorganization Cases, *Journal of Empirical Legal Studies*, forthcoming.

[18] Lubben, Stephen J., 2000, The Direct Costs of Corporate Reorganization: An Empirical Examination of Professional Fees in Large Chapter 11 Cases, *American Bankruptcy Law Journal* 509, 508-552.

[19] Maksimovic, Vojislav, and M. Gordon Phillips, 1998, Asset Efficiency and Reallocation Decisions of Bankrupt Firms, *The Journal of Finance* 53, 1495-1532.

[20] Pulvino, Todd, 1998, Do Asset Fire Sales Exist? An Empirical Investigation of Commercial Aircraft Transactions, *The Journal of Finance* 53-3, 939-978.

[21] Pulvino, Todd, 1999, Effects of Bankruptcy Court Protection on Asset Sales," *Journal of Financial Economics* 52, 151–186.

[22] Ravid, Abraham and Stefan Sundgren, 1998, The Comparative Efficiency of Small-Firm Bankruptcies: A Study of the US and Finnish Bankruptcy Codes, *Financial Management* 27-4, 28-40.

[23] Stromberg, Per, 2000, Conflicts of Interest and Market Illiquidity in Bankruptcy Auctions: Theory and Tests, *The Journal of Finance* 55-6, 2641-2691.

[24] Tashjian Elizabeth, Ronald C. Lease, and John J. McConnel, 1996, Prepacks: An Empirical Analysis of Prepacked Bankruptcies, *Journal of Financial Economics* 40, 135-162.

[25] Thorburn, Karin, 2000, Bankruptcy auctions: Costs, Debt Recovery and Firm Survival, *Journal of Financial Economics* 58, 337-368.

[26] Warner, J., 1977, Bankruptcy Cost: Some Evidence, *The Journal of Finance* 32-3 (May), 337-347.

[27] Weiss, Lawrence A., 1990, Bankruptcy Resolution, *Journal of Financial Economics* 27, 285-314.

[28] Weiss, Lawrence A, and Karen Wruch, 1998, Information Problems, Conflicts of Interest, and Asset Stripping: Chapter 11's Failure in the Case of Eastern Airlines, *Journal of Financial Economics* 48, 55-97.

	Chapter 7 Cases			Chapter 11 Cases					
	Arizona	New York	All	Arizona		New York		All	
				Total	Cases Open as of 10/31/03	Total	Cases Open as of 10/31/03	Total	Cases Open as of 10/31/03
1995						10		10	
1996						18		18	
1997						30		30	
1998	2	17	19	4		39		43	
1999	2	22	24	13		17		30	
2000	7	11	18	57	6	3	1	60	7
2001				34	19			34	19
Total	11	50	61	108	25	117	1	225	26

Table 1

Number of cases in the sample. The sample includes all corporate bankruptcies, with sufficient data, filed under Chapter 7 and Chapter 11 between 1995 and 2001 in the Federal Bankruptcy Courts of Arizona and Southern District of New York. Data is obtained online and handcoded from the Public Access to Court Electronic Records (PACER). We exclude from the original sample: dismissals, transfer to other courts or chapters (except for Chapter 11 to Chapter 7 conversions), and cases of subsidiaries of the same company after the initial filing by the parent.

	Chapter 7					Chapter 11		
		Post-Bankruptcy, Pre-Fees Assets		Ratio Post / Pre Bankrupcty				
	Pre-Bankruptcy Assets	Reported Senior Recovery	Assuming Senior Recovery=2.6 x Pre-Bankrupcty Assets	Reported Senior Recovery	Assuming Senior Recovery=2.6 x Pre-Bankrupcty Assets	Pre-Bankruptcy Assets	Post-Bankruptcy, Pre-Fees Assets	Ratio Post / Pre Bankrupcty
Minimum	$0	$0	$0	0.0%	0.0%	$0	$13,427	3.4%
25th Percentile	$49,000	$0	$0	0.0%	10.7%	$315,146	$335,341	55.3%
Median	$110,813	$0	$6,593	0.8%	38.0%	$1,100,000	$1,040,385	86.9%
75th Percentile	$278,900	$0	$139,650	12.3%	136.0%	$5,863,500	$6,529,087	120.4%
Maximum	$7,921,000	$7,328,549	$7,328,549	158.9%	278.2%	$712,000,000	$474,000,000	474.8%
Mean	$501,886	$158,989	$388,339	17.2%	80.0%	$19,800,000	$20,400,000	106.5%
St. Dev.	$1,271,522	$1,035,574	$1,249,510	35.2%	89.9%	$71,900,000	$68,800,000	83.2%

Table 2

Distribution of Pre-Bankrupty Assets and Post-Bankruptcy, Pre-Fees Assets. Pre-Bankruptcy Assets is the dollar amount declared in the initial filing as "Value of Assets". Post-Bankrupty, Pre-Fees Assets is calculated as percent recovery rates by creditors times amount owed to creditors, plus total legal fees disclosed and reimbursed by the court. The sample includes all corporate bankruptcies, with sufficient data, filed under Chapter 7 and Chapter 11 between 1995 and 2001 in the Federal Bankruptcy Courts of Arizona and Southern District of New York. Data is obtained online and handcoded from the Public Access to Court Electronic Records (PACER). We exclude from the original sample: dismissals, transfer to other courts or chapters (except for Chapter 11 to Chapter 7 conversions), and cases of subsidiaries of the same company after the initial filing by the parent.

	Chapter 7	Chapter 11	Difference "Chapter 7" - "Chapter 11" (p-value)
N	56	221	
Min	9.0%	0.2%	
25th Percentile	86.2%	75.0%	
Median	167.8%	122.6%	(0.0003)
75th Percentile	394.9%	251.4%	
Maximum	8,896.2%	37,015.4%	
Mean	537.4%	569.3%	(0.9756)
St. Dev.	1,280.7%	3,020.6%	

Table 3

Relative Indebtness: Debt to Pre-Bankruptcy Asset Value. Pre-Bankruptcy Assets is the dollar amount declared in the initial filing as "Value of Assets". Debt is calculated as total amount owed to creditors. The sample includes all corporate bankruptcies, with sufficient data, filed under Chapter 7 and Chapter 11 between 1995 and 2001 in the Federal Bankruptcy Courts of Arizona and Southern District of New York. Data is obtained online and handcoded from the Public Access to Court Electronic Records (PACER). We exclude from the original sample: dismissals, transfer to other courts or chapters (except for Chapter 11 to Chapter 7 conversions), and cases of subsidiaries of the same company after the initial filing by the parent. Test for differences are based on a non-parametric two-tailed Wilcoxon test.

	Chapter 11							Chapter 7
	From Filing to Plan Submission		From Plan Submission to Plan Confirmation		From Plan Confirmation to Case Closure		Total Length	Total Length
	Days	% Days / Length of Case	Days	% Days / Length of Case	Days	% Days / Length of Case	Days	Days
N	195	190	147	146	139	139	257	116
Min	0	0%	27	3%	0	0%	56	74
25th Percentile	10	2%	89	15%	79	13%	550	440
Median	151	23%	154	26%	171	29%	866	672
75th Percentile	294	42%	274	43%	337	52%	913	936
Max	1,329	95%	1,101	89%	1,268	95%	2,215	1,553
Mean	204	27%	225	31%	239	33%	822	709
St. Dev.	228	24%	203	20%	216	24%	385	367
% Less Than 120 days	22%							

Table 4

Length of Time in Bankruptcy, in days. The sample includes all corporate bankruptcies, with sufficient data, filed under Chapter 7 and Chapter 11 between 1995 and 2001 in the Federal Bankruptcy Courts of Arizona and Southern District of New York. Data is obtained online and handcoded from the Public Access to Court Electronic Records (PACER). We exclude from the original sample: dismissals, transfer to other courts or chapters (except for Chapter 11 to Chapter 7 conversions), and cases of subsidiaries of the same company after the initial filing by the parent. All Chapter 11 means and medians are significantly different from their Chapter 7 equivalents at the 1 percent significance level. Tests of medians are based on two-tailed Wilcoxon tests.

	Chapter 7 Cases						Chapter 11 Cases					
	Arizona		New York		Total		Arizona		New York		Total	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Number of Firms	11	11	50	50	61	61	106	106	116	116	222	222
Total Expenses / Pre-Bankruptcy Assets	9.4%	6.5%	7.8%	2.1%	8.1%	2.5%	5.7%	0.8%	14.2%	3.8%	9.5%	2.0%
Total Expenses / Post-Bankruptcy Assets	75.9%	100.0%	78.9%	100.0%	78.3%	100.0%	4.3%	1.9%	13.1%	4.6%	9.4%	3.5%
Total Expenses / Post-Bankruptcy Assets (Assuming seniors recover 2.6 x Pre-Bankruptcy Assets)	32.6%	5.7%	39.1%	9.7%	37.9%	9.6%						
Total Expenses / Total Liabilities	3.6%	2.6%	2.8%	0.2%	2.9%	0.4%	7.8%	0.7%	14.8%	2.8%	11.5%	1.4%
Total Expenses	$12,566	$2,609	$22,438	$0	$21,417	$806	$38,953	$4,368	$321,123	$62,250	$166,627	$21,403
Expenses - Debtor							$30,447	$4,368	$256,430	$62,250	$132,698	$21,403
As a % of Pre-Bankruptcy Assets							4.46%	0.80%	28.65%	3.90%	17.15%	1.95%
Expenses - Unsecured Creditors Committee							$8,506	$0	$64,693	$0	$33,929	$0
As a % of Pre-Bankruptcy Assets							1.25%	0.00%	7.23%	0.00%	4.39%	0.00%
Expenses - Accountants	$273	$0	$1,584	$0	$1,449	$0						
As a % of Pre-Bankruptcy Assets	0.21%	0.00%	0.55%		0.55%	0.00%						
Expenses - Trustee	$1,473	$0	$6,533	$0	$6,010	$0						
As a % of Pre-Bankruptcy Assets	1.11%	0.00%	2.28%		2.29%	0.00%						
Expenses - Debtor's Attorney	$10,131	$2,609	$9,470	$0	$9,538	$806						
As a % of Pre-Bankruptcy Assets	7.61%	6.46%	3.31%		3.63%	2.50%						
Expenses - Other	$690	$0	$4,851	$0	$4,421	$0						
As a % of Pre-Bankruptcy Assets	0.52%	0.00%	1.70%		1.68%	0.00%						

Table 5

Fees and Post-Fees Assets. Pre-Bankruptcy Assets is the dollar amount declared in the initial filing as "Value of Assets". Post-Bankrupty Assets is calculated as percent recovery rates by creditors times amount owed to creditors, plus total legal fees disclosed and reimbursed by the court. We also calculate Post-Bankruptcy Assets under the assumption that, in Chapter 7, secured creditors recover 260 percent of the value of the Pre-Bankruptcy Assets, which is twice the maximum observable amount in the sample. Expense categories are the ones used in the court filings. The sample includes all corporate bankruptcies, with sufficient data, filed under Chapter 7 and Chapter 11 between 1995 and 2001 in the Federal Bankruptcy Courts of Arizona and Southern District of New York. Data is obtained online and handcoded from the Public Access to Court Electronic Records (PACER). We exclude from the original sample: dismissals, transfer to other courts or chapters (except for Chapter 11 to Chapter 7 conversions), and cases of subsidiaries of the same company after the initial filing by the parent.

	Chapter 7 Firms				Chapter 11 Firms			All Firms		
		Fees to Post-Bankruptcy Assets								
	Fees to Pre-Bankruptcy Assets	Reported Senior Recovery	Assuming Senior Recovery=2.6 x Pre-Bankrupcty Assets	Fees to Total Liabilities	Fees to Pre-Bankruptcy Assets	Fees to Post-Bankruptcy Assets	Fees to Total Liabilities	Fees to Pre-Bankruptcy Assets	Fees to Post-Bankruptcy Assets	Fees to Total Liabilities
N	57	21	38	76	223	152	227	280	168	303
Min	0.0%	9.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
25th Percentile	0.0%	55.2%	0.3%	0.0%	0.2%	0.8%	0.2%	0.1%	0.5%	0.0%
Median	2.5%	100.0%	8.1%	0.4%	2.0%	3.4% ***	1.4% ***	2.1%	4.3%	1.1%
75th Percentile	10.7%	100.0%	100.0%	3.7%	7.8%	9.6%	5.5%	8.2%	8.4%	4.8%
Max	47.8%	100.0%	100.0%	34.8%	100.0%	98.5%	555.4%	100.0%	100.0%	555.4%
Mean	8.1%	80.4%	37.3%	2.9%	9.5%	9.6% ***	11.5% ***	9.2%	16.4%	9.3%
St. Dev.	11.9%	32.7%	44.7%	5.3%	20.5%	17.1%	55.2%	19.1%	28.1%	47.9%
% Equal to (Truncated to) 100%	0.0%	68.0%	28.9%	0.0%	2.7%	0.0%	1.8%	2.2%	0.0%	1.3%
% Less than 1%	45.6%	0.0%	28.9%	53.9%	40.5%	29.6%	44.5%	41.6%	28.7%	46.9%

*, **, and *** denotes that corresponding mean (median) is significantly different from the mean(median) of Chapter 7 firms at the 10%, 5%, and 1% levels, respectively. For Fees to Post-Bankrtupcy assets, we assume senior recovery

Table 6

Range of Expenses as a Fraction of Firm. Pre-Bankruptcy Assets is the dollar amount declared in the initial filing as "Value of Assets". Fees for Chapter 7 include attorney, accountant, trustee, and other expenses paid for by the company. Chapter 1 1 expenses include reimbursement requests by both the unsecured creditors committee and the debtor-in-possession Post-Bankrupty Assets is calculated as percent recovery rates by creditors times amount owed to creditors, plus total legal fees disclosed and reimbursed by the court. We also calculate Post-Bankruptcy Assets under the assumption that, in Chapter 7, secured creditors recover 260 percent of the value of the Pre-Bankruptcy Assets, which is twice the maximum observable amount in the sample. Expense categories are the ones used in the court filings. The sample includes all corporate bankruptcies, with sufficient data, filed under Chapter 7 and Chapter 11 between 1995 and 2001 in the Federal Bankruptcy Courts of Arizona and Southern District of New York. Data is obtained online and handcoded from the Public Access to Court Electronic Records (PACER). We exclude from the original sample: dismissals, transfer to other courts or chapters (except for Chapter 11 to Chapter 7 conversions), and cases of subsidiaries of the same company after the initial filing by the parent.

	Fees Granted / Fees Requested by Debtor	Granted / Fees Requested by Unsecured Creditor
N	179	34
Min	38.1%	60.5%
25th Percentile	100.0%	100.0%
Median	100.0%	100.0%
75th Percentile	100.0%	100.0%
Max	100.0%	100.0%
Mean	98.7%	97.5%
St. Dev.	6.2%	8.1%
Difference in Mean: AZ - NY (p-value)	(0.0237)	(0.0951)
Difference in Median: AZ - NY (p-value)	(0.0234)	(0.3411)

Table 7

Court Control of Fees. The Table Shows Fees Granted by the court relative to Debtor and Unsecured Creditors Committee Requests. The sample includes all corporate bankruptcies, with sufficient data, filed under Chapter 7 and Chapter 11 between 1995 and 2001 in the Federal Bankruptcy Courts of Arizona and Southern District of New York. Data is obtained online and handcoded from the Public Access to Court Electronic Records (PACER). We exclude from the original sample: dismissals, transfer to other courts or chapters (except for Chapter 11 to Chapter 7 conversions), and cases of subsidiaries of the same company after the initial filing by the parent.

	Chapter 7 Firms				Chapter 11 Firms				
			Total Recovery						
	Senior Recovery	Junior Recovery	With Actual Senior Recovery	Assuming Senior Recovery=2.6 x Pre-Bankrupcty Assets	Senior Recovery	Junior Recovery	Total Recovery	APR Violation	APR Adherence Index
N	29	115	47	47	143	173	157	263	261
Min	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0%	-40.5%
25th Percentile	0.0	0.0	0.0	0.0	95.0	10.0	45.8	0.0%	100.0%
Median	0.0	0.0	0.0	5.8	100.0	40.0	79.2	0.0%	100.0%
75th Percentile	100.0	0.0	0.0	64.7	100.0	100.0	100.0	0.0%	100.0%
Max	100.0	87.9	98.3	100.0	100.0	100.0	100.0	100.0%	100.0%
Mean	32.4	1.1	5.4	27.4	90.2	51.6	0.7	12.2%	91.0%
St. Dev.	46.4	8.4	19.9	38.2	21.8	41.3	0.3	32.8%	27.2%
% Equal to 0	58.6	94.8	78.7	42.55	0.7	5.2	0.0	87.8	0.0
% Equal or Above 100	30.0	0.0	0.0	6.38	74.1	34.6	34.4	12.2	88.5

Table 8

Recovery Rates and APR Violations. Recovery rates are in percent. Total Recovery equals the total amount recovered by creditors (percent recovered times amount owed) divided by the total amount owed. We also calculate Total Recovery under the assumption that, in Chapter 7, secured creditors recover 260 percent of the value of the Pre-Bankruptcy Assets, which is twice the maximum observable amount in the sample. 'APR Violation' equals one when secured creditors get less than 100 percent, and unsecured creditors get something more than 0 percent. The APR Adherence index is the linear combination of Full APR (secured get all that they are owed, unsecured get the rest), and Proportional Distribution (Assets are distributed proportionally to the creditor's claim). An index of 1 means Full APR. . The sample includes all corporate bankruptcies, with sufficient data, filed under Chapter 7 and Chapter 11 between 1995 and 2001 in the Federal Bankruptcy Courts of Arizona and Southern District of New York. Data is obtained online and handcoded from the Public Access to Court Electronic Records (PACER). We exclude from the original sample: dismissals, transfer to other courts or chapters (except for Chapter 11 to Chapter 7 conversions), and cases of subsidiaries of the same company after the initial filing by the parent. All Chapter 11 means and medians are significantly different from their Chapter 7 equivalents at the 1 percent significance level, and irrespective on the assumption on Senior recovery. Tests of medians are based on two-tailed Wilcoxon tests.

Panel A: Bankruptcy Court of Arizona

Judge	Number of Cases	Total Assets		Fraction Ultimately Paid to Creditors		Frequency of APR Violations		APR Adherence Index		Length of Proceedings		Total Fees / Total Assets	
		Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Hon.Redfield T. Baum, Jr.	27	7,511,718	806,181	96.1%	98.4%	17.2%	0.0%	85.5%	100.0%	797	872	12.4%	1.4%
Hon. Charles G. Case, II	15	21,700,000	904,258	97.3%	99.0%	22.2%	0.0%	88.4%	100.0%	783	890	7.5%	0.6%
Hon. Sarah S. Curley	19	5,898,767	482,929	96.0%	98.8%	13.6%	0.0%	94.1%	100.0%	775	685	3.9%	0.9%
Hon. Randolph J. Haines	7	513,342	**220,310**	92.6%	94.9%	37.5%	0.0%	63.9%	100.0%	575	681	4.4%	3.1%
Hon. Eileen Hollowell	3	2,979,949	4,025,250	96.6%	100.0%	33.3%	0.0%	81.4%	100.0%	771	913	1.5%	0.0%
Hon. James M. Marlar	3	4,316,081	**4,584,744**	99.7%	99.7%	33.3%	0.0%	66.7%	100.0%	747	873	0.1%	**0.0%**
Hon. George B. Nielson, Jr.	7	**69,900,000**	1,422,979	92.9%	96.9%	**57.1%**	**100.0%**	**49.1%**	**29.1%**	**501**	**395**	1.9%	1.9%
Total	81	18,200,000	805,982	95.7%	98.1%	18.1%	0.0%	87.5%	100.0%	764	908	5.7%	0.8%
T-test for Equality of Means (p-value)		(0.4168)		(0.0000)		(0.0000)		(0.0000)		(0.0000)		(0.5852)	

Panel B: Bankruptcy Court of New York

Judge	Number of Cases	Total Assets		Fraction Ultimately Paid to Creditors		Frequency of APR Violations		APR Adherence Index		Length of Proceedings		Total Fees / Total Assets	
		Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Hon. Prudence C. Beatty	12	23,200,000	2,640,222	91.7%	98.0%	0.0%	0.0%	100.0%	100.0%	**1,139**	1,229	3.7%	**2.2%**
Hon. Jeremiah H. Berk	1	390,000	390,000	99.2%	99.2%	0.0%	0.0%	100.0%	100.0%	567	567	1.8%	1.8%
Hon. Stuart M. Bernstein	10	2,951,785	536,000	76.6%	91.0%	20.0%	0.0%	**74.3%**	100.0%	795	**583**	63.2%	13.2%
Hon. Cornelius Blackshear	14	24,300,000	4,842,727	90.6%	98.6%	7.1%	0.0%	92.9%	100.0%	1,026	923	33.1%	1.4%
Hon. Tina L. Brozman	9	42,700,000	2,500,000	94.1%	96.1%	11.1%	0.0%	95.1%	100.0%	788	734	6.1%	3.3%
Hon. John J. Connelly	3	195,724	100,000	68.6%	68.6%	0.0%	0.0%	100.0%	100.0%	949	915	52.2%	**50.1%**
Hon. Robert D. Drain	1	4,100,000	4,100,000	78.7%	78.7%	0.0%	0.0%	100.0%	100.0%	1,028	1,028	9.4%	9.4%
Hon. Jeffry H. Gallet	13	21,000,000	2,018,000	71.5%	89.9%	7.7%	0.0%	91.7%	100.0%	**639**	**646**	78.6%	6.1%
Hon. James L. Garrity, Jr.	8	38,400,000	4,827,505	91.0%	97.9%	0.0%	0.0%	100.0%	100.0%	678	732	135.9%	1.3%
Hon. Robert E. Gerber	4	6,685,811	1,811,600	93.8%	97.9%	0.0%	0.0%	100.0%	100.0%	1,057	1,117	6.8%	4.2%
Hon. Arthur J. Gonzalez	15	8,000,678	1,200,000	86.0%	94.6%	6.3%	0.0%	93.6%	100.0%	1,000	1,018	29.3%	5.0%
Hon. Allan Gropper	2	263,661	263,661	90.4%	90.4%	0.0%	0.0%	100.0%	100.0%	626	626	42.1%	42.1%
Hon. Adlai S. Hardin	7	49,400,000	1,750,000	82.9%	92.8%	14.3%	0.0%	89.9%	100.0%	507	**496**	7.5%	1.2%
Hon. Burton R. Lifland	12	30,000,000	4,323,980	92.3%	96.2%	0.0%	0.0%	100.0%	100.0%	1,054	964	6.1%	1.5%
Total	111	21,200,000	1,921,443	86.9%	95.4%	5.9%	0.0%	94.3%	100.0%	886	769	35.9%	3.9%
T-test for Equality of Means (p-value)		(0.2260)		(0.0000)		(0.5726)		(0.0000)		(0.0000)		(0.3396)	

Table 9

Court and Judge Differences. Descriptive statistics by court and judge. Fraction Ultimately Paid to Creditors is the ratio of Total Creditor Recover (percent recovery times amount owed) and the value of Post-Bankruptcy, Pre-Fees Assets. Post-Bankruptcy, Pre-Fees Assets is calculated as percent recovery rates by creditors times amount owed to creditors, plus total legal fees disclosed and reimbursed by the court. 'APR Violation' equals one when secured creditors get less than 100 percent, and unsecured creditors get something more than 0 percent. The APR Adherence index is the linear combination of Full APR (secured get all that they are owed, unsecured get the rest), and Proportional Distribution (Assets are distributed proportionally to the creditor's claim). An index of 1 means Full APR. . The sample includes all corporate bankruptcies, with sufficient data, filed under Chapter 7 and Chapter 11 between 1995 and 2001 in the Federal Bankruptcy Courts of Arizona and Southern District of New York. Data is obtained online and handcoded from the Public Access to Court Electronic Records (PACER). We exclude from the original sample: dismissals, transfer to other courts or chapters (except for Chapter 11 to Chapter 7 conversions), and cases of subsidiaries of the same company after the initial filing by the parent. Significant values at the 5 percent level are in bold. Test for the equality of means are based on two-tailed t-statistics.

Bivariate Probit: Determinants of Who Files and Where, and the Existence of Creditors' Committee

	Univariate Probit	Bivariate Probit	
	Existence of Creditors' Committee	Voluntary Petition (=1) - Involuntary Petition (=0)	Chapter 11 (=1) - Chapter 7 (=0)
Intercept	-0.779 **	1.418 **	0.880 **
	-2.41	2.10	2.17
Assets in Top Quartile (Yes=1)	0.983 **	-1.258 *	-1.112
	2.55	-1.69	-1.44
Assets in Bottom Quartile (Yes=1)	-0.590	-0.793	-1.231 ***
	-1.38	-1.25	-3.55
Total Assets ($Million)	0.021 *	-0.385	0.269 **
	1.66	-1.54	2.07
Total Assets - Squared ($Million^2)	0.000	0.050 **	-0.001 **
	-1.18	2.15	-2.01
Secured Debt to Total Debt	-1.143 **	0.102	-0.969 **
	-2.58	0.12	-2.23
log (Debt to Assets)	0.245 **	0.008	0.174
	2.25	0.09	1.56
Arizona Dummy	-0.630 **	0.393	0.461
	-2.07	0.65	1.42
% Equity Owned by Managers	-0.001	0.001	0.008 **
	-0.43	0.15	2.15
Number of Secured Creditors	0.080 **	0.657 **	0.324 **
	2.35	2.01	2.36
Number of Unsecured Creditors	0.001	-0.001	0.001
	0.90	-1.28	0.52
Secured Debt Includes Banks	0.088	0.400	-0.734 **
	0.27	0.52	-2.15
Unsecured Debt Includes Banks	-1.010 **	0.568	-1.054 ***
	-2.34	0.99	-3.25
Pseudo R-squared	0.3488	0.0811	0.2264
Likelihood Ratio Test		0.0518	
Number of Cases	167	195	

*, **, and *** denote statistical significance at the 10, 5, and 1 percent or better, respectively

Table 10

Procedure Choice. Probit estimation for the existence of a Creditors' Committee, only for Chapter 11 cases. Bivariate probit for the choice of Chapter 11 (=1) vs. Chapter 7 (=0), and for volunatry filing (=1) vs. involuntary filing (=0). both Chapter 11 and Chapter 7 are included in this table. 'Assets in Top (Bottom) quartile' is a dummy variable, calculated over pre-bankruptcy assets. The sample includes all corporate bankruptcies, with sufficient data, filed under Chapter 7 and Chapter 11 between 1995 and 2001 in the Federal Bankruptcy Courts of Arizona and Southern District of New York. Data is obtained online and handcoded from the Public Access to Court Electronic Records (PACER). We exclude from the original sample: dismissals, transfer to other courts or chapters (except for Chapter 11 to Chapter 7 conversions), and cases of subsidiaries of the same company after the initial filing by the parent. Significant values at the 5 percent level are in bold. Test for the equality of means are based on two-tailed t-statistics.

Interpretation	Dependent Variable: log(Days)	Standard Deviation of Independent Variable	OLS		TREATMENT EFFECTS REGRESSION		HECKMAN REGRESSION		HECKMAN REGRESSION	
			Estimate	T-Stat	Estimate	T-Stat	Estimate	T-Stat	Estimate	T-Stat
	Total Assets ($Million)	64.217	-0.003	-0.71	-0.002	-0.60	-0.002	-0.52	-0.005	-1.26
	Total Assets - Squared ($Million^2)	33874.800	1.2E-05	0.98	1.1E-05	0.88	1.1E-05	0.84	2.2E-05 *	1.75
	log (Debt to Assets)	1.333	0.031	0.63	0.035	0.93	0.033	0.84	0.021	0.57
	Secured Debt to Total Debt	0.378	0.051	0.31	0.080	0.53	0.106	0.67	0.105	0.64
	Number of Secured Creditors / 100	0.486	0.065 **	2.53	0.067	0.86	0.070	0.90	0.061	0.84
	Number of Unsecured Creditors / 100	4.103	1.0E-02	0.66	1.1E-02	0.69	1.1E-02	0.66	2.4E-02	1.55
Maybe Positive	Fraction of Equity Owned by Managers	0.436	0.147	1.31	0.157	1.52	0.200 *	1.75	0.199 *	1.81
	Secured Debt Includes Banks	0.468	0.054	0.46	0.038	0.35	0.075	0.66	0.039	0.36
	Unsecured Debt Includes Banks	0.410	-0.084	-0.57	-0.116	-0.86	-0.160	-1.11	-0.103	-0.75
	Voluntary Petition (Yes / No)	0.235	-0.027	-0.10	-0.016	-0.06	-0.021	-0.08	0.057	0.24
	Existence of Creditors' Committee	0.347	0.030	0.19	0.037	0.27	0.033	0.25	-0.043	-0.33
	Arizona Dummy	0.493	-0.094	-1.00	-0.088	-0.90	-0.105	-0.97		
Matters	Arizona Judge Dummies (7 dummies)								6.203 ***	20.76
Matters	New York Judge Dummies (14 dummies)								6.297 ***	20.98
	Chapter 11 (Yes / No)	0.461	0.264 *	1.73						
	Chapter 11 (Yes / No) Instrumented				0.142	0.51				
	Intercept		6.208 ***	20.11	6.287 ***	18.70	6.393 ***	21.25		
	Mill's Ratio				0.083	0.47	0.102	0.52	0.250	1.16
	Test (Asset Variables = 0) (p-value)		(0.4155)		(0.5536)		(0.5191)		(0.1039)	
	Test (NY Judges = AZ Judges) (p-value)								(0.5654)	
	N (Chapter 11 + Chapter 7)		151+42		151+42		164+0		163+0	
	Adjusted R-squared		0.0716		0.0591		0.0676		0.2592	
Standard Deviation of Dependent Variable		0.605								

*, **, and *** denote statistical significance at the 10, 5, and 1 percent or better, respectively

Table 11. Overall Duration of Bankruptcy

Determinants of the length of bankruptcy cases. Both Chapter 11 and Chapter 7 are included in this table. The length of the case is measure as days from case filing with the court, to case closure by judge. Total As sets are $ value reported by the firm in the case filing. Secured (Unsecured) Debt Includes Bank is a dummy variable that takes value one whenever Secured (Unsecured) creditors include a bank, financial institution or mortgagor. Voluntary Petition (Yes/No) is a dummy variable that takes value one when the case is filed by the firm, zero otherwise. % Equity Owned by managers is as declared by the firm in the case filing. A treatment effects regression is estimated with both Chapter 7 and Chapter 11 cases in both the selection equation and the estimation equation. Heckman Regressions are estimated with both Chapter 7 and Chapter 11 in the selection equation, but only Chapter 11 cases in the estimation equation. The coefficients corresponding to "Arizona Judge Dummies" and "New York Judge Dummies" are the average coefficient in a fixed effect regression. Tests of significance for these coefficients are based on a Z-test of joint significance of the fixed effects

Table 12. Panel A

Interpretation	Dependent Variable: log(Days)	Standard Deviation of Independent Variable	From Filing to Plan Submission: OLS Estimate	OLS T-Stat	HECKMAN REGRESSION Estimate	HECKMAN REGRESSION T-Stat	HECKMAN REGRESSION Estimate	HECKMAN REGRESSION T-Stat
Inverted U-shaped	Total Assets ($Million)	71.880	-0.0339 **	-2.14	-0.0301 ***	-3.03	-0.0322 ***	-3.43
Inverted U-shaped	Total Assets - Squared ($Million^2)	38123.9	1.1E-04 **	1.99	9.7E-05 ***	2.82	1.1E-04 ***	3.31
	log (Debt to Assets)	1.336	-0.0296	-0.16	-0.0222	-0.23	-0.0976	-1.07
	Secured Debt to Total Debt	0.366	-4.8E-01	-1.33	-3.7E-01	-1.04	-4.2E-01	-1.14
Negative if Judge Controlled	Number of Secured Creditors / 100	0.560	-0.1211	-1.52	-0.1183	-0.75	-0.2319 *	-1.64
	Number of Unsecured Creditors / 100	4.758	0.0222	0.33	0.0273	0.62	0.0026	0.06
Positive	Fraction of Equity Owned by Managers	0.450	0.7281 ***	2.74	0.8047 ***	2.79	0.7139 ***	2.62
	Secured Debt Includes Banks	0.481	-0.0295	-0.11	-0.1001	-0.36	-0.0333	-0.13
	Unsecured Debt Includes Banks	0.378	0.2020	0.48	0.0476	0.13	0.3440	0.96
	Voluntary Petition (Yes / No)	0.172	-0.0637	-0.24	0.0147	0.03	-0.0399	-0.08
Positive if Judge-controlled	Existence of Creditors' Committee	0.402	0.3683	1.11	0.4442	1.43	0.5132 *	1.73
	Arizona Dummy	0.499	-0.0887	-0.35	-0.0109	-0.04		
Matters	Arizona Judge Dummies (7 dummies)						4.7908 ***	7.79
Matters	New York Judge Dummies (14 dummies)						5.1529 ***	7.89
	Intercept		5.1459 ***	13.51	4.8164 ***	7.51		
	Mill's Ratio				0.319	0.79	0.249	0.60
Matters	Test (Asset Variables = 0) (p-value)		(0.1067)		(0.0099)		(0.0025)	
Matters	Test (NY Judges = AZ Judges) (p-value)						(0.0093)	
	N (Chapter 11 + Chapter 7)		111+0		111+0		111+0	
	Adjusted R-squared		0.2792	0.6417	0.2323	0.8459	0.4176	
Standard Deviation of Dependent Variable		1.287						

*, **, and *** denote statistical significance at the 10, 5, and 1 percent or better, respectively

Table 12. Panel B

Interpretation	Dependent Variable: log(Days)	Standard Deviation of Independent Variable	From Plan Submission to Plan Confirmation: OLS Estimate	OLS T-Stat	HECKMAN REGRESSION Estimate	HECKMAN REGRESSION T-Stat	HECKMAN REGRESSION Estimate	HECKMAN REGRESSION T-Stat
	Total Assets ($Million)	71.880	-0.0017	-0.31	-0.0021	-0.39	-0.0029	-0.58
	Total Assets - Squared ($Million^2)	38123.9	1.0E-06	0.05	2.4E-06	0.11	7.5E-07	0.04
	log (Debt to Assets)	1.336	-0.0324	-0.70	-0.0342	-0.59	-0.0098	-0.18
Positive if Judge Controlled	Secured Debt to Total Debt	0.366	1.7E-01	0.75	1.5E-01	0.66	6.5E-01 ***	2.77
	Number of Secured Creditors / 100	0.560	0.1151 ***	2.61	0.1143	1.18	0.0336	0.39
Positive	Number of Unsecured Creditors / 100	4.758	0.0610 ***	3.59	0.0601 ***	2.38	0.0865 ***	3.55
	Fraction of Equity Owned by Managers	0.450	0.0840	0.44	0.0732	0.40	0.0397	0.24
	Secured Debt Includes Banks	0.481	-0.0975	-0.56	-0.0870	-0.50	-0.2400	-1.44
Positive if Judge-controlled	Unsecured Debt Includes Banks	0.378	0.0407	0.13	0.0604	0.27	0.4453 **	2.13
	Voluntary Petition (Yes / No)	0.172	-0.2882	-0.71	-0.3003	-0.92	-0.2890	-1.00
Negative	Existence of Creditors' Committee	0.402	-0.4277 **	-2.08	-0.4381 **	-2.25	-0.4262 **	-2.38
	Arizona Dummy	0.499	0.1388	0.79	0.1303	0.78		
Matters	Arizona Judge Dummies (7 dummies)						4.9418 ***	12.95
	New York Judge Dummies (14 dummies)						5.0005 ***	12.47
	Intercept		5.2214 ***	12.49	5.2690 ***	12.99		
	Mill's Ratio				0.246	0.30	0.604	0.75
	Test (Asset Variables = 0) (p-value)		(0.0123)		(0.7609)		(0.3463)	
	Test (NY Judges = AZ Judges) (p-value)						(0.7730)	
	N (Chapter 11 + Chapter 7)		112+0		112+0		112+0	
	Adjusted R-squared		0.1257	0.2456	0.1030	0.6075	0.5013	
Standard Deviation of Dependent Variable		0.805						

*, **, and *** denote statistical significance at the 10, 5, and 1 percent or better, respectively

Table 12 Panel C

Interpretation	Dependent Variable: log(Days)	Standard Deviation of Independent Variable	From Plan Confirmation to Closure: OLS Estimate	OLS T-Stat	HECKMAN REGRESSION Estimate	HECKMAN REGRESSION T-Stat	HECKMAN REGRESSION Estimate	HECKMAN REGRESSION T-Stat
	Total Assets ($Million)	71.880	-0.0023	-0.38	-0.0049	-0.57	-0.0023	-0.31
	Total Assets - Squared ($Million^2)	38123.9	1.4E-05	0.68	2.1E-05	0.65	7.0E-06	0.25
Positive if Judge-controlled	log (Debt to Assets)	1.336	0.1073	1.25	0.0997	1.11	0.2041 ***	2.77
	Secured Debt to Total Debt	0.366	1.1E-01	0.30	3.3E-02	0.09	2.9E-02	0.08
	Number of Secured Creditors / 100	0.560	-0.1411	-0.03	-0.6388	-0.15	-2.6785	-0.72
	Number of Unsecured Creditors / 100	4.758	-0.0270	-0.85	-0.0315	-0.81	0.0182	0.53
	Fraction of Equity Owned by Managers	0.450	-0.0642	-0.22	-0.1230	-0.44	0.0971	0.41
Maybe Positive	Secured Debt Includes Banks	0.481	0.4933 *	1.80	0.5607 **	2.06	0.3690	1.50
	Unsecured Debt Includes Banks	0.378	0.1579	0.46	0.2671	0.76	0.0699	0.23
	Voluntary Petition (Yes / No)	0.172	0.3372	0.68	0.2843	0.53	0.7438 *	1.65
Positive	Existence of Creditors' Committee	0.402	0.4867 *	1.82	0.4398	1.40	0.6136 **	2.25
	Arizona Dummy	0.499	-0.3530	-0.89	-0.3512	-1.15		
Matters	Arizona Judge Dummies (7 dummies)						3.5384 ***	5.69
	New York Judge Dummies (14 dummies)						3.8539 ***	6.42
	Intercept		4.4374 ***	8.91	4.6715 ***	7.33		
	Mill's Ratio				-0.327	-0.84	-0.071	-0.19
	Test (Asset Variables = 0) (p-value)		(0.3450)		(0.8030)		(0.9463)	
	Test (NY Judges = AZ Judges) (p-value)						(0.3124)	
	N (Chapter 11 + Chapter 7)		102+0		102+0		102+0	
	Adjusted R-squared		0.1265	0.5420	0.2025	1.9909	0.8543	
Standard Deviation of Dependent Variable		1.114						

*, **, and *** denote statistical significance at the 10, 5, and 1 percent or better, respectively

Table 12. Duration of Bankruptcy Phases

Panel A: Days from filing to plan submission. Panel B: Days from plan submission to plan confirmation. Panel C: Days from plan confirmation to case closure. Only Chapter 11s are considered in this table. Total Assets are $ value reported by the firm in the case filing. Secured (Unsecured) Debt Includes Bank is a dummy variable that takes value one whenever Secured (Unsecured) creditors include a bank, financial institution or mortgagor. Voluntary Petition (Yes/No) is a dummy variable that takes value one when the case is filed by the firm, zero otherwise. % Equity Owned by managers is as declared by the firm in the case filing. Heckman Regressions are estimated with both Chapter 7 and Chapter 11 in the selection equation, but only Chapter 11 cases in the estimation equation. The coefficients corresponding to "Arizona Judge Dummies" and "New York Judge Dummies" are the average coefficient in a fixed effect regression. Tests of significance for these coefficients are based on a Z-test of joint significance of the fixed effects

Interpretation		Standard Deviation of Independent Variable	OLS		TREATMENT EFFECTS REGRESSION		HECKMAN REGRESSION		HECKMAN REGRESSION	
			Estimate	T-Stat	Estimate	T-Stat	Estimate	T-Stat	Estimate	T-Stat
	Total Assets ($Million)	64.217	-0.0036	-1.58	0.0011	0.17	0.0048	0.49	0.0053	0.53
	Total Assets - Squared ($Million^2)	33874.8	0.0000 *	1.72	0.0000	0.15	0.0000	-0.23	0.0000	-0.20
Positive if controlled	log (Debt to Assets)	1.333	0.2563	1.50	0.2948 ***	4.33	0.3279 ***	3.42	0.3354 ***	3.42
Positive if controlled	Secured Debt to Total Debt	0.378	0.2409	0.54	0.5456 **	2.13	0.6377 *	1.77	0.7678 *	1.87
	log (Duration of Case in Days)	0.605	-0.0012	-0.01	-0.0147	-0.12	-0.0325	-0.18	0.0253	0.13
	Number of Secured Creditors / 100	0.486	0.0253	0.78	0.0458	0.32	0.0398	0.20	0.0303	0.15
	Number of Unsecured Creditors / 100	4.103	-0.0120	-0.88	0.0008	0.03	0.0104	0.25	-0.0087	-0.20
	Fraction of Equity Owned by Managers	0.436	-0.0166	-0.10	0.0911	0.48	0.1355	0.49	0.1954	0.68
Maybe Negative	Secured Debt Includes Banks	0.468	-0.1936	-1.10	-0.3634 *	-1.87	-0.3908	-1.43	-0.4553	-1.57
Maybe Negative	Unsecured Debt Includes Banks	0.410	-0.1128	-0.46	-0.4525 *	-1.83	-0.4718	-1.36	-0.5005	-1.40
	Voluntary Petition (Yes / No)	0.235	-0.4114	-0.73	-0.2880	-0.67	-0.1862	-0.33	0.0393	0.07
	Existence of Creditors' Committee	0.347	-0.1254	-0.70	-0.0465	-0.19	0.0307	0.10	0.0836	0.25
	Arizona Dummy	0.493	-0.2170 *	-1.71	-0.1514	-0.85	-0.0458	-0.17		
	Arizona Judge Dummies (7 dummies)								-0.6158	-0.43
	New York Judge Dummies (14 dummies)								-0.7536	-0.52
	Chapter 11 (Yes / No)	0.461	0.1965	1.63						
Negative	Chapter 11 (Yes / No) Instrumented				-1.0969 **	-2.18				
	Intercept		0.5059	0.62	1.4231	1.49	-0.0048	0.00		
Important	Mill's Ratio				0.9388 ***	3.11	1.5318 ***	3.49	1.4988 ***	3.06
	Test (Asset Variables = 0) (p-value)		(0.2205)		(0.6518)		(0.6957)		(0.5708)	
	Test (NY Judges = AZ Judges) (p-value)								(0.7418)	
	N (Chapter 11 + Chapter 7)		151+42		151+42		151+0		151+0	
	Adjusted R-squared		0.1187		0.1836		0.0803		0.1109	
Standard Deviation of Dependent Variable		0.909								

*, **, and *** denote statistical significance at the 10, 5, and 1 percent or better, respectively

Table 13. Bankruptcy Expenses / Pre-Bankruptcy Assets

Total Expenses in Bankruptcy, divided by pre-bankruptcy assets. Total Expenses are determined, in Chapter 11, as the sum of the debtor legal expenses and the unsecured creditors' committee legal expenses; in Chapter 7, as the sum of: Trustee expenses, Debtor attorney, accountant, and other. Both Chapter 11 and Chapter 7 are included in this table. The length of the case is measure as days from case filing with the court, to case closure by judge. Total Assets are $ value reported by the firm in the case filing. Secured (Unsecured) Debt Includes Bank is a dummy variable that takes value one whenever Secured (Unsecured) creditors include a bank, financial institution or mortgagor. Voluntary Petition (Yes/No) is a dummy variable that takes value one when the case is filed by the firm, zero otherwise. % Equity Owned by managers is as declared by the firm in the case filing. A treatment effects regression is estimated with both Chapter 7 and Chapter 11 cases in both the selection equation and the estimation equation. Heckman Regressions are estimated with both Chapter 7 and Chapter 11 in the selection equation, but only Chapter 11 cases in the estimation equation. The coefficients corresponding to "Arizona Judge Dummies" and "New York Judge Dummies" are the average coefficient in a fixed effect regression. Tests of significance for these coefficients are based on a Z-test of joint significance of the fixed effects

Interpretation		Standard Deviation of Independent Variable	OLS		TREATMENT EFFECTS REGRESSION		HECKMAN REGRESSION		HECKMAN REGRESSION	
			Estimate	T-Stat	Estimate	T-Stat	Estimate	T-Stat	Estimate	T-Stat
	Total Assets ($Million)	64.217	-0.0016 *	-1.90	0.0000	0.00	0.0014	0.38	0.0023	0.47
	Total Assets - Squared ($Million^2)	33874.8	0.0000 **	2.24	0.0000	0.07	0.0000	-0.31	0.0000	-0.38
	log (Debt to Assets)	1.333	-0.0431 **	-2.44	-0.0299	-1.07	-0.0284	-0.78	-0.0149	0.09
	Secured Debt to Total Debt	0.378	-0.1851 *	-1.87	-0.0775	-0.72	-0.0687	-0.50	0.0177	-0.31
	log (Duration of Case in Days)	0.605	0.0529	1.24	0.0483	0.95	0.0428	0.63	0.0449	0.46
	Number of Secured Creditors / 100	0.486	0.0002	1.03	0.0002	0.40	0.0002	0.29	0.0002	0.19
	Number of Unsecured Creditors / 100	4.103	-0.0001	-1.23	0.0000	-0.07	0.0000	0.19	0.0001	0.31
	Fraction of Equity Owned by Managers	0.436	0.0007	0.93	0.0010	1.32	0.0012	1.16	0.0015	1.03
	Secured Debt Includes Banks	0.468	0.0010	0.02	-0.0574	-0.71	-0.0702	-0.67	-0.1134	-0.79
	Unsecured Debt Includes Banks	0.410	0.0694	0.68	-0.0433	-0.43	-0.0366	-0.28	-0.0712	-0.40
	Voluntary Petition (Yes / No)	0.235	-0.1080	-0.47	-0.0644	-0.35	-0.0070	-0.03	0.1601	0.57
	Existence of Creditors' Committee	0.347	-0.0571	-1.00	-0.0295	-0.30	0.0076	0.06	0.0199	0.12
	Arizona Dummy	0.493	-0.1260 **	-2.41	-0.1042	-1.42	-0.0678	-0.67		
	Arizona Judge Dummies (7 dummies)								-0.5443	-0.77
	New York Judge Dummies (14 dummies)								-0.5977	-0.83
Negative	Chapter 11 (Yes / No)	0.461	0.1134 *	1.73						
Maybe Negative	Chapter 11 (Yes / No) Instrumented				-0.3173	-1.56				
	Intercept		-0.1132	-0.32	0.1872	0.47	-0.2751	-0.54		
Important	Mill's Ratio				0.3187 **	2.54	0.5825 ***	3.52	0.7449 ***	3.07
	Test (Asset Variables = 0) (p-value)		(0.0814)		(0.9792)		(0.9215)		(0.8795)	
	Test (NY Judges = AZ Judges) (p-value)								(0.7979)	
	N (Chapter 11 + Chapter 7)		151+42		151+42		151+0		151+0	
	Adjusted R-squared		0.0744		0.5141		0.4161		0.4163	
Standard Deviation of Dependent Variable		0.909								

*, **, and *** denote statistical significance at the 10, 5, and 1 percent or better, respectively

Table 14. Bankruptcy Expenses Relative to Total Liabilities

Total Expenses in Bankruptcy, divided by pre-bankruptcy assets. Total Expenses are determined, in Chapter 11, as the sum of the debtor legal expenses and the unsecured creditors' committee legal expenses; in Chapter 7, as the sum of: Trustee expenses, Debtor attorney, accountant, and other. Both Chapter 11 and Chapter 7 are included in this table. The length of the case is measure as days from case filing with the court, to case closure by judge. Total Assets are $ value reported by the firm in the case filing. Secured (Unsecured) Debt Includes Bank is a dummy variable that takes value one whenever Secured (Unsecured) creditors include a bank, financial institution or mortgagor. Voluntary Petition (Yes/No) is a dummy variable that takes value one when the case is filed by the firm, zero otherwise. % Equity Owned by managers is as declared by the firm in the case filing. A treatment effects regression is estimated with both Chapter 7 and Chapter 11 cases in both the selection equation and the estimation equation. Heckman Regressions are estimated with both Chapter 7 and Chapter 11 in the selection equation, but only Chapter 11 cases in the estimation equation. The coefficients corresponding to "Arizona Judge Dummies" and "New York Judge Dummies" are the average coefficient in a fixed effect regression. Tests of significance for these coefficients are based on a Z-test of joint significance of the fixed effects

Interpretation		Standard Deviation of Independent Variable	Debtor Expenses						Interpretation	Unsecured Creditor Expenses					
			OLS		HECKMAN		HECKMAN			OLS		HECKMAN		HECKMAN	
			Estimate	T-Stat	Estimate	T-Stat	Estimate	T-Stat		Estimate	T-Stat	Estimate	T-Stat	Estimate	T-Stat
	Total Assets ($Million)	71.880	-1.5E-03	-0.74	5.5E-03	0.65	6.2E-03	0.72		-1.6E-03 *	-1.78	-7.4E-04	-0.60	-7.5E-04	-0.58
	Total Assets - Squared ($Million^2)	38123.910	9.6E-06	1.15	-9.5E-06	-0.33	-9.2E-06	-0.31		4.1E-06 *	1.66	1.8E-06	0.42	1.8E-06	0.41
NR - Positive if Controlled	log (Debt to Assets)	1.336	0.2091	1.17	0.2894 ***	3.37	0.2900 ***	3.40	NR - Positive if Controlled	0.0253	1.07	0.0357 ***	2.78	0.0346 ***	2.64
NR - Positive if Controlled	Secured Debt to Total Debt	0.366	0.3056	0.69	0.6375 **	2.02	0.7351 **	2.10		-0.0368	-0.97	-0.0010	-0.02	0.0211	0.39
	log (Duration of Case in Days)	0.590	0.0048	0.05	-0.0198	-0.13	0.0448	0.27		-0.0104	-0.38	-0.0120	-0.52	-0.0161	-0.64
	Number of Secured Creditors / 100	0.006	4.3790	1.41	5.3730	0.31	5.9020	0.34		-1.3080	-1.59	-1.3280	-0.52	-2.3580	-0.93
	Number of Unsecured Creditors / 100	0.048	-0.5170	-0.56	1.2800	0.35	-0.7360	-0.20		-0.4410	-1.03	-0.2250	-0.42	-0.1040	-0.19
	Fraction of Equity Owned by Managers	0.450	0.0654	0.41	0.1846	0.75	0.2452	0.99		-0.0573	-1.35	-0.0467	-1.31	-0.0420	-1.13
R - Negative	Secured Debt Includes Banks	0.005	-25.7288 *	-1.73	-42.6363 *	-1.76	-50.7971 **	-2.04		4.7266	0.94	3.4286	0.96	4.6145	1.22
	Unsecured Debt Includes Banks	0.378	-0.1403	-0.59	-0.4656	-1.53	-0.4953	-1.62		0.0216	0.59	-0.0050	-0.11	-0.0007	-0.01
	Voluntary Petition (Yes / No)	0.172	0.0164	0.08	0.0954	0.18	0.3565	0.69	R - Negative if Controlled	-0.2897	-1.01	-0.2659 ***	-3.58	-0.2585 ***	-3.46
	Existence of Creditors' Committee	0.402	-0.2977 **	-1.98	-0.1160	-0.39	-0.0871	-0.29	R - Positive	0.1225 *	1.83	0.1386 ***	3.33	0.1383 ***	3.19
	Unsecured Creditors Expenses / Assets	0.158	0.4740	1.33	0.0600	0.13	0.2371	0.50							
	Debtor Expenses / Assets	0.880								0.0134	0.79	0.0018	0.15	0.0071	0.59
	Arizona Dummy	0.499	-0.2594 **	-2.17	-0.1000	-0.42				0.0289	0.79	0.0513	1.50		
	Arizona Judge Dummies (7 dummies)						-1.0217	-0.84						0.3348 *	1.81
	New York Judge Dummies (14 dummies)						-1.1086	-0.90						0.2944	1.56
	Intercept		-0.0292	-0.04	-0.2977	-0.25				0.3430	1.40	0.2769	1.59		
Important	Mill's Ratio				1.3471 ***	3.38	1.2789 ***	2.98				0.1718 ***	2.87	0.1683 **	2.55
	Test (Asset Variables = 0) (p-value)		(0.4792)		(0.5633)		(0.4020)			(0.1960)		(0.7683)		(0.7738)	
	Test (NY Judges = AZ Judges) (p-value)						(0.8079)							(0.4526)	
	N (Chapter 11 + Chapter 7)		164+0		164+0		164+0			164+0		164+0		164+0	
	Adjusted R-squared		0.1135		0.0902		0.1386			0.2320		0.1851		0.2457	
Standard Deviation Debtor Expenses		0.880													
Standard Deviation Unsecured Expenses		0.158													

*, **, and *** denote statistical significance at the 10, 5, and 1 percent or better, respectively

R and NR denote respectively Robust and Not Robust to the endogenous variable being specified as Expenses divided by Post-Bankrutpcy Assets

Table 15. Expenses by Party

Expenses by the debtor, and expenses by the unsecured creditors' committee, divided by pre-bankruptcy assets. Only Chapter 11s are included in this table. The length of the case is measure as days from case filing with the court, to case closure by judge. Total Assets are $ value reported by the firm in the case filing. Secured (Unsecured) Debt Includes Bank is a dummy variable that takes value one whenever Secured (Unsecured) creditors include a bank, financial institution or mortgagor. Voluntary Petition (Yes/No) is a dummy variable that takes value one when the case is filed by the firm, zero otherwise. % Equity Owned by managers is as declared by the firm in the case filing. Heckman Regressions are estimated with both Chapter 7 and Chapter 11 in the selection equation, but only Chapter 11 cases in the estimation equation. The coefficients corresponding to "Arizona Judge Dummies" and "New York Judge Dummies" are the average coefficient in a fixed effect regression. Tests of significance for these coefficients are based on a Z-test of joint significance of the fixed effects

For the Referee Only

Interpretation		Standard Deviation of Independent Variable	Debtor Expenses OLS Estimate	OLS T-Stat	HECKMAN Estimate	HECKMAN T-Stat	HECKMAN Estimate	HECKMAN T-Stat	Interpretation	Unsecured Creditor Expenses OLS Estimate	OLS T-Stat	HECKMAN Estimate	HECKMAN T-Stat	HECKMAN Estimate	HECKMAN T-Stat
	Total Assets ($Million)	71.880	-7.0E-04 *	-1.68	7.0E-04	0.34	1.1E-03	0.49	Maybe negative	-2.9E-04 **	-2.05	-4.2E-04	-1.32	-4.4E-04	-1.26
	Total Assets - Squared ($Million^2)	38123.910	2.4E-06 *	1.98	-1.3E-06	-0.19	-2.3E-06	-0.32		5.9E-07	1.31	9.1E-07	0.89	9.6E-07	0.84
	log (Debt to Assets)	1.336	-0.0188	-0.82	-0.0200	-0.74	-0.0122	-0.43		0.0001	0.06	0.0008	0.18	0.0010	0.22
	Secured Debt to Total Debt	0.366	-0.1028	-1.46	-0.0443	-0.53	-0.0156	-0.17		-0.0098	-0.95	-0.0131	-0.96	-0.0159	-1.03
	log (Duration of Case in Days)	0.590	0.0020	0.08	0.0100	0.20	0.0126	0.23		0.0073	1.20	0.0062	0.77	0.0102	1.12
	Number of Secured Creditors / 100	0.560	0.0220 ***	3.73	0.0243	0.62	0.0233	0.59		-0.0022 *	-1.67	-0.0030	-0.48	-0.0024	-0.38
	Number of Unsecured Creditors / 100	4.750	0.0013	0.87	0.0034	0.38	0.0032	0.35		0.0007	1.08	0.0004	0.32	0.0003	0.19
	Fraction of Equity Owned by Managers	0.450	0.0452	1.47	0.0615	0.95	0.0689	0.99		0.0150	1.66	0.0116	1.11	0.0111	0.97
Maybe Negative	Secured Debt Includes Banks	0.481	-0.0588 *	-1.76	-0.0762	-1.26	-0.0989	-1.55		-0.0018	-0.40	0.0018	0.19	0.0023	0.21
	Unsecured Debt Includes Banks	0.378	-0.0306	-1.22	-0.1076	-1.16	-0.0847	-0.83		0.0074	1.20	0.0166	1.09	0.0136	0.81
	Voluntary Petition (Yes / No)	0.172	0.0478	1.12	0.0512	0.27	0.0784	0.41	Negative	-0.1892	-1.24	-0.1863 ***	-6.95	-0.1731 ***	-6.15
	Existence of Creditors' Committee	0.402	-0.0701 **	-2.58	-0.0199	-0.27	-0.0223	-0.28	Positive	0.0393 ***	2.81	0.0348 ***	3.02	0.0353 ***	2.87
	Unsecured Creditors Expenses / Assets	0.051	0.4933 ***	3.76	0.5903	1.00	0.5725	0.96							
	Debtor Expenses / Assets	0.151							Positive if Controllec	0.0477	1.45	0.0744 **	2.53	0.0768 **	2.56
	Arizona Dummy	0.499	-0.0851 ***	-3.52	-0.0555	-0.92				0.0089	1.10	0.0077	0.79	***	
	Arizona Judge Dummies (7 dummies)						-0.1472	-0.39						0.1175 *	1.92
	New York Judge Dummies (14 dummies)						-0.1113	-0.29						0.1047 *	1.68
	Intercept		0.1432	0.78	-0.0417	-0.12				0.1274	0.92	0.1407 **	2.49		
Important	Mill's Ratio				0.2960 ***	3.03	0.2900 ***	2.81	Important			-0.0328 *	-1.77	-0.0377 *	-1.95
	Test (Asset Variables = 0) (p-value)		(0.1349)		(0.8823)		(0.8134)			(0.0408)		(0.2528)		(0.2656)	
	Test (NY Judges = AZ Judges) (p-value)						(0.6754)							(0.3587)	
	N (Chapter 11 + Chapter 7)		164+0		164+0		164+0			164+0		164+0		164+0	
	Adjusted R-squared		0.2842		0.4202		0.3423			0.3422		0.5646		0.6077	
Standard Deviation Debtor Expenses		0.151													
Standard Deviation Unsecured Expenses		0.051													

*, **, and *** denote statistical significance at the 10, 5, and 1 percent or better, respectively

Table 15 for the Referee. Expenses to Post-Bankruptcy Asssets

Expenses by the debtor, and expenses by the unsecured creditors' committee, divided by pre-bankruptcy assets. Only Chapter 11s are included in this table. The length of the case is measure as days from case filing with the court, to case closure by judge. Total Assets are $ value reported by the firm in the case filing. Secured (Unsecured) Debt Includes Bank is a dummy variable that takes value one whenever Secured (Unsecured) creditors include a bank, financial institution or mortgagor. Voluntary Petition (Yes/No) is a dummy variable that takes value one when the case is filed by the firm, zero otherwise. % Equity Owned by managers is as declared by the firm in the case filing. Heckman Regressions are estimated with both Chapter 7 and Chapter 11 in the selection equation, but only Chapter 11 cases in the estimation equation. The coefficients corresponding to "Arizona Judge Dummies" and "New York Judge Dummies" are the average coefficient in a fixed effect regression. Tests of significance for these coefficients are based on a Z-test of joint significance of the fixed effects

Table 16. Panel A: Secured Creditors Recovery, Chapter 11

Interpretation		Standard Deviation of Independent Variable	OLS		HECKMAN REGRESSION		HECKMAN REGRESSION	
			Estimate	T-Stat	Estimate	T-Stat	Estimate	T-Stat
Inverted U-shaped	Total Assets ($Million)	53.855	0.427 ***	3.00	0.087	0.66	0.159	1.19
	Total Assets - Squared ($Million^2)	14364.340	-0.001 **	-2.59	0.000	-0.37	0.000	-0.81
U-shaped if Controlled	Debt-to-Assets ratio	34.908	-4.795	-1.30	-7.366 **	-2.56	-7.783 ***	-2.75
	Debt-to-Assets ratio (Squared)	11456.360	0.202	0.80	0.551 **	2.02	0.496 *	1.87
	Secured Debt to Total Debt	0.356	-8.859	-0.95	-2.184	-0.33	-5.977	-0.86
	log (Duration of Case in Days)	0.619	8.199	1.31	-2.085	-0.59	-1.389	-0.37
Negative	Legal Expenses by Debtor / Total Assets	1.139	-19.609 **	-2.38	-25.334 ***	-3.72	-23.491 ***	-3.48
Maybe Positive	Legal Expenses by Unsecured / Total Assets	0.206	141.706 **	2.51	107.808	1.33	163.979	1.41
	Number of Secured Creditors / 100	0.635	-0.696	-0.45	-2.101	-0.87	-1.664	-0.73
	Number of Unsecured Creditors / 100	3.733	-0.093	-0.26	-0.005	-0.01	0.006	0.01
	Fraction of Equity Owned by Managers	0.458	5.424	0.79	1.094	0.25	2.957	0.65
	Secured Debt Includes Banks	0.485	-6.328	-1.00	-0.531	-0.13	-0.882	-0.22
Negative	Unsecured Debt Includes Banks	0.398	-35.633 ***	-3.50	-12.225 *	-1.66	-14.628 **	-1.97
	Voluntary Petition (Yes / No)	0.188	-4.371	-0.54	0.829	0.08	-2.352	-0.20
	Existence of Creditors' Committee	0.434	1.154	0.21	-0.791	-0.15	-3.931	-0.72
Negative if Controlled	Arizona Dummy	0.481	-3.298	-0.50	-9.610 **	-2.43		
Matters	Arizona Judge Dummies (7 dummies)						115.962 ***	4.74
	New York Judge Dummies (14 dummies)						122.106 ***	4.82
	Intercept		51.968	1.32	120.675 ***	4.89		
	Mill's Ratio				5.402	0.48	-1.982	-0.17
	Test (Asset Variables = 0) (p-value)		(0.0128)		(0.6254)		(0.3378)	
	Test (NY Judges = AZ Judges) (p-value)						(0.2013)	
	N (Chapter 11 + Chapter 7)		111+0		111+0		111+0	
	Adjusted R-squared		0.3158		0.7687		0.8065	

(Standard Deviation of Dependent Variable: 19.83657)

*, **, and *** denote statistical significance at the 10, 5, and 1 percent or better, respectively

Table 16. Panel B: Unsecured Creditors Recovery, Chapter 7 + Chapter 11

Interpretation		Standard Deviation of Independent Variable	OLS		TREATMENT EFFECTS REGRESSION		HECKMAN REGRESSION		HECKMAN REGRESSION	
			Estimate	T-Stat	Estimate	T-Stat	Estimate	T-Stat	Estimate	T-Stat
	Total Assets ($Million)	53.855	0.172	0.90	0.182	0.90	0.210	0.91	0.294	1.27
	Total Assets - Squared ($Million^2)	14364.340	0.000	-0.75	0.000	-0.64	-0.001	-0.75	-0.001	-1.03
U-shaped	Debt-to-Assets ratio	34.908	-19.161 ***	-5.35	-19.024 ***	-5.26	-27.029 ***	-5.38	-28.123 ***	-5.83
U-shaped	Debt-to-Assets ratio (Squared)	11456.360	1.245 ***	4.44	1.234 ***	4.35	1.900 ***	4.00	2.017 ***	4.48
	Secured Debt to Total Debt	0.356	9.438	0.88	9.807	0.94	4.644	0.40	-1.821	-0.16
	log (Duration of Case in Days)	0.619	-7.915	-1.50	-7.888	-1.49	-6.504	-1.07	-1.913	-0.30
	Legal Expenses by Debtor / Total Assets	1.139					13.191	1.17	9.908	0.98
	Legal Expenses by Unsecured / Total Assets	0.206					176.827	1.25	-18.110	-0.09
	Total Legal Expenses / Total Assets		10.621 *	1.78	10.262	0.92				
Negative	Number of Secured Creditors / 100	0.635	-9.450 ***	-6.20	-9.381 **	-2.34	-8.871 **	-2.09	-8.807 **	-2.22
	Number of Unsecured Creditors / 100	3.733	-0.181	-0.30	-0.163	-0.18	-0.274	-0.29	-0.263	-0.27
	Fraction of Equity Owned by Managers	0.458	-0.853	-0.12	-0.596	-0.09	-5.572	-0.74	-7.043	-0.90
	Secured Debt Includes Banks	0.485	-0.800	-0.13	-1.119	-0.17	2.541	0.37	5.089	0.73
Positive	Unsecured Debt Includes Banks	0.398	19.169 **	2.23	18.415 *	1.94	26.738 **	2.08	23.448 *	1.88
		0.188	12.355	0.76	12.404	0.67	9.994	0.53	1.446	0.08
Negative	Existence of Creditors' Committee						-18.429 **	-2.02	-19.137 **	-2.04
Maybe Negative	Arizona Dummy	0.481	-9.617	-1.39	-9.526	-1.59	-15.780 **	-2.28		
Matters	Arizona Judge Dummies (7 dummies)								99.665 ***	2.43
Matters	New York Judge Dummies (14 dummies)								114.460 ***	2.69
Positive	Chapter 11 (Yes / No)		61.544 ***	7.45						
Positive	Chapter 11 (Yes / No) Instrumented				59.375 ***	3.40				
	Intercept		50.483	1.42	51.806	1.39	126.047 ***	2.94		
	Mill's Ratio				-20.75	-1.08	-20.75	-1.08	-27.24	-1.49
	Test (Asset Variables = 0) (p-value)		(0.6410)		(0.5697)		(0.6349)		(0.3958)	
	Test (NY Judges = AZ Judges) (p-value)								(0.1012)	
	N (Chapter 11 + Chapter 7)		109+0		109+0		109+0		109+0	
	Adjusted R-squared		0.4821		0.4647		0.4648		0.5577	

(Standard Deviation of Dependent Variable:40.70137)

*, **, and *** denote statistical significance at the 10, 5, and 1 percent or better, respectively

Table 16. Total Recovery Rates by Creditor

Total Recovery Rates by Creditor. Recovery rates are in percent. The sample includes all corporate bankruptcies, with sufficient data, filed under Chapter 7 and Chapter 11 between 1995 and 2001 in the Federal Bankruptcy Courts of Arizona and Southern District of New York. Data is obtained online and handcoded from the Public Access to Court Electronic Records (PACER). We exclude from the original sample: dismissals, transfer to other courts or chapters (except for Chapter 11 to Chapter 7 conversions), and cases of subsidiaries of the same company after the initial filing by the parent. A treatment effects regression is estimated with both Chapter 7 and Chapter 11 cases in both the selection equation and the estimation equation. Heckman regressions are estimated with both Chapter 7 and Chapter 11 in the selection equation, but only Chapter 11 cases in the estimation equation. The coefficients corresponding to "Arizona Judge Dummies" and "New York Judge Dummies" are the average coefficients in a fixed-effect regression. Tests of significance for these coefficients are based on a Z-test of joint significance of all the fixed effects.

Interpretation		Standard Deviation of Independent Variable	Assuming Seniors get 2.6 x Pre-Bankruptcy Assets in Chapter 7							
			OLS		**TREATMENT EFFECTS REGRESSION**		**HECKMAN REGRESSION**		**HECKMAN REGRESSION**	
			Estimate	T-Stat	Estimate	T-Stat	Estimate	T-Stat	Estimate	T-Stat
Inverted U-shaped	Total Assets ($Million)	54.726	0.0028 **	2.20	0.0018	1.35	0.0027 *	1.77	0.0041 **	1.98
	Total Assets - Squared ($Million^2)	14809.460	-7.2E-06 **	-2.26	-4.9E-06	-1.08	-7.3E-06	-1.49	-1.2E-05 *	-1.81
U-shaped	Debt-to-Assets ratio	2.894	-0.1006 ***	-5.21	-0.1053 ***	-6.51	-0.1530 ***	-5.33	-0.1741 ***	-4.74
	Debt-to-Assets ratio (Squared)	46.823	0.0040 ***	4.21	0.0045 ***	4.60	0.0081 ***	2.85	0.0095 ***	2.65
Positive	Secured Debt to Total Debt	0.355	0.4464 ***	5.50	0.4248 ***	7.07	0.3416 ***	5.30	0.2311 ***	2.6
	log (Duration of Case in Days)	0.550	-0.0406	-1.19	-0.0400	-1.21	-0.0133	-0.35	0.0275	0.52
Positive	Legal Expenses by Debtor / Total Assets	0.854					0.0553 ***	2.67	0.0570 **	2.35
	Legal Expenses by Unsecured / Total Assets	0.024					1.3923	1.45	0.6475	0.38
Positive	Total Legal Expenses / Total Assets	0.789	0.0464 *	1.93	0.0564 ***	2.63				
Neg. with Chapter 7	Number of Secured Creditors / 100	0.683	-0.0473 ***	-4.54	-0.0565 ***	-2.03	-0.0459	-1.61	-0.0416	-1.17
	Number of Unsecured Creditors / 100	3.857	-0.0001	-0.03	-0.0017	-0.27	-0.0024	-0.37	-0.0019	-0.22
Maybe Negative or Nothing	Fraction of Equity Owned by Managers	0.455	-0.0516	-1.06	-0.0619	-1.42	-0.0796 *	-1.66	-0.0838	-1.31
	Secured Debt Includes Banks	0.495	0.0242	0.65	0.0360	0.87	0.0194	0.43	0.0374	0.63
	Unsecured Debt Includes Banks	0.410	-0.0374	-0.61	0.0352	0.54	0.0260	0.33	0.0049	0.05
Maybe Positive	Voluntary Petition (Yes / No)	0.144	0.2004 **	2.46	0.2130 *	1.71	0.2317 *	1.83	0.1344	0.83
	Existence of Creditors' Committee	0.437					-0.0906	-1.51	-0.1260	-1.55
Negative	Arizona Dummy	0.472	-0.0671	-1.56	-0.0590	-1.48	-0.0874 **	-1.97		
May Matter	Arizona Judge Dummies (7 dummies)								0.5429	1.55
	New York Judge Dummies (14 dummies)								0.6420 *	1.78
Positive	Chapter 11 (Yes / No)	0.356	0.1637 ***	2.89						
Positive	Chapter 11 (Yes / No) Instrumented				0.3121 ***	3.06				
	Intercept		0.5454 **	2.35	0.4005 *	1.65	0.6673 **	2.51		
May matter	Mill's Ratio				-0.1344 **	-1.97	-0.1707	-1.61	-0.2564 *	-1.95
	Test (Asset Variables = 0) (p-value)		(0.0802)		(0.3567)		(0.1844)		(0.1379)	
	Test (NY Judges = AZ Judges) (p-value)								(0.2047)	
	N (Chapter 11 + Chapter 7)		121+24		121+24		121+0		121+0	
	Adjusted R-squared		0.6669		0.6846		0.5277		0.6011	
Standard Deviation of Dependent Variable		0.373								

*, **, and *** denote statistical significance at the 10, 5, and 1 percent or better, respectively

Table 17. Total Proportional Recovery

Total Proportional Recovery. Recovery rates are in percent. Total Recovery equals the total amount recovered by creditors (percent recovered times amount owed) divided by the total amount owed. The sample includes all corporate bankruptcies, with sufficient data, filed under Chapter 7 and Chapter 11 between 1995 and 2001 in the Federal Bankruptcy Courts of Arizona and Southern District of New York. Data is obtained online and handcoded from the Public Access to Court Electronic Records (PACER). We exclude from the original sample: dismissals, transfer to other courts or chapters (except for Chapter 11 to Chapter 7 conversions), and cases of subsidiaries of the same company after the initial filing by the parent. A treatment effects regression is estimated with both Chapter 7 and Chapter 11 cases in both the selection equation and the estimation equation. Heckman regressions are estimated with both Chapter 7 and Chapter 11 in the selection equation, but only Chapter 11 cases in the estimation equation. The coefficients corresponding to “Arizona Judge Dummies” and “New York Judge Dummies” are the average coefficients in a fixed-effect regression. Tests of significance for these coefficients are based on a Z-test of joint significance of all the fixed effects.

		Panel A: Probability of APR Violations						Panel B: APR Violation Index					
Interpretation		Standard Deviation of Independent Variable	PROBIT		PROBIT		HECKMAN PROBIT		Standard Deviation of Independent Variable	OLS		HECKMAN REGRESSION		HECKMAN REGRESSION	
			Estimate	t-stat	Estimate	t-stat	Estimate	t-stat		Estimate	t-stat	Estimate	t-stat	Estimate	t-stat
	Total Assets ($Million)	77.214	-0.022	-1.54	-0.009	-0.72	-0.026	-1.35	77.214	-0.002	0.72	-0.001	0.71	0.000	-0.07
	Total Assets - Squared ($Million^2)	41831.880	6.4E-05	1.45	2.6E-05	0.67	7.7E-05	1.25	41831.880	4.8E-06	-0.78	4.3E-06	-0.67	-5.3E-07	0.09
	log (Debt to Assets)	1.209	-0.369	-1.36	-0.352	-1.58	-0.302	-0.99	1.209	0.013	-0.29	0.016	-0.38	0.016	-0.42
Positive	Secured Debt to Total Debt	0.319	4.322 ***	3.44	2.920 ***	2.83	4.025 ***	3.15	0.319	0.413 ***	-2.82	0.424 ***	-3.52	0.476 ***	-4.60
Negative	log (Duration of Case in Days)	0.541	-1.264 ***	-3.74	-0.222 *	-1.77	-1.149 ***	-2.78	0.541	-0.108 *	1.70	-0.110 **	2.02	-0.056	1.12
Negative	Total Recovery Rate by Creditors	0.308	-4.680 ***	-3.59	-3.468 ***	-3.37	-4.282 ***	-3.12	0.308	-0.323 *	1.74	-0.315 **	2.31	-0.426 ***	3.47
Negative	Log (1+Number of Secured Creditors)	0.740	-1.162 ***	-2.67	-0.528 *	-1.94	-2.353 **	-2.44	0.740	-0.091 ***	2.87	-0.086 **	2.17	-0.081 **	2.33
Positive	Log (1+Number of Unsecured Creditors)	1.671	0.558 ***	2.74	0.364 **	2.06	0.458 *	1.77	1.671	0.054 **	-2.16	0.059 **	-2.14	0.042 *	-1.81
	Secured Debt Includes Banks	0.498	0.256	0.53	0.230	0.64	0.281	0.67	0.498	0.077	-1.06	0.070	-1.12	0.069	-1.23
	Unsecured Debt Includes Banks	0.374	0.305	0.43	0.054	0.09	0.585	1.01	0.374	0.071	-0.63	0.051	-0.52	0.067	-0.74
	Legal Expenses by Debtor / Total Assets	0.815	0.125	0.27	-0.074	-0.18	0.194	0.27	0.815	0.202 ***	-3.08	0.184 *	-1.73	0.169 *	-1.90
Negative, unless Controlled	Legal Expenses by Unsecured / Total Assets	0.194	-30.556 **	-2.26	-24.186 *	-1.86	-25.522	-1.33	0.194	-1.614 *	1.91	-1.631	1.32	-2.727 *	1.75
Positive	Fraction of Equity Owned by Managers	0.443	1.147 **	2.12	0.814 **	2.03	0.928 *	1.79	0.443	0.116	-1.53	0.123 *	-1.81	0.068	-1.07
	Existence of Creditors' Committee	0.434	0.932	1.60	0.287	0.55	0.635	0.98	0.434	0.075	-0.76	0.076	-0.87	0.081	-1.00
Positive	Arizona Dummy	0.494	1.536 ***	3.23			1.339 ***	2.77	0.494	0.160 **	-2.27	0.167 **	-2.55		
Matters	Arizona Judge Dummies (7 dummies)				-20.468 ***	-8.36								-0.529	1.63
	New York Judge Dummies (14 dummies)				-54.927 ***	-14.18								-0.626 *	1.83
	Intercept		5.676 **	2.57			6.129 ***	2.68		-0.409	1.09	-0.453	1.19		
	Mill's Ratio						0.176	0.99				0.069	-0.47	0.093	-0.73
	Test (Asset Variables = 0) (p-value)		(0.6404)		(0.2986)		(0.6204)			(0.7340)		(0.7741)		(0.9948)	
Matters	Test (NY Judges = AZ Judges) (p-value)				(0.0000)									(0.2260)	
	Number of Observations		110		83		110			110		110		83	
	Adjusted R-squared		0.4268		0.4451		0.6521			0.2805		0.398		0.621	

(Standard Deviation of Dependent Variable: .3520296)

*, **, and *** denote statistical significance at the 10, 5, and 1 percent or better, respectively

Table 18. APR Violations

Panel A: Probit Regression, where the dependent variable equals one when APR is violated, zero otherwise. Panel B: the dependent variable is the APR violation index. A case is considered in violation of APR when payment to secured creditors is below 100 percent, payment to unsecured creditors is higher than zero, and there are both secured and unsecured creditors. The APR violation Index is calculated, for each case, as the negative of the convex combination of full APR adherence (all to secured, nothing or whatever is left to unsecured), and full APR violation (proportional distribution). APR Violation Index of 1 implies that APR is violated. Only Chapter 11s are included in this table. The length of the case is measured as days from case filing with the court, to case closure by judge. Total Assets are $ value reported by the firm in the case filing (in $ million). Secured (Unsecured) Debt Includes Banks is a dummy variable whenever the creditor is a bank, financial institution, or a mortgagor. Voluntary Petition (Yes / No) is a dummy variable that equals one when the case is filed by the firm, zero otherwise. Fraction of Equity Owned by Managers is as declared by the firm in the case filing. A treatment effects regression is estimated with both Chapter 7 and Chapter 11 cases in both the selection equation and the estimation equation. Heckman regressions are estimated with both Chapter 7 and Chapter 11 in the selection equation, but only Chapter 11 cases in the estimation equation. The coefficients corresponding to “Arizona Judge Dummies” and “New York Judge Dummies” are the average coefficient in a fixed effect regression. Test of significance for these coefficients are based on a Z-test of joint significance.

Correlation Matrix

	Recovery Rate - Unsecured Creditors	Recovery Rate - Secured Creditors	Total Expenses to Assets	Debtor Expenses to Assets	Unsecured Expenses to Assets	Length of Proceedings	Total Assets	Total Assets Squared	Debt-to-Assets Ratio	Number of Secured Creditors	Number of Unsecured Creditors	Secured Debt Includes Banks (Yes/No)	Unsecured Debt Includes Banks (Yes/No)	Arizona Dummy	Voluntary Petition	% Equity Owned by Managers	Existence of Creditors Committee (Yes/No)	APR Violations	Fraction Ultimately Paid to Creditors	Days from Filing to Plan Submission (Ch 11)	Days from Plan Submission to Plan Confirmation(Ch 11)
Recovery Rate - Unsecured Creditors	1																				
Recovery Rate - Secured Creditors	0.4745 *** (0.0000)	1																			
Total Expenses to Assets	-0.0681 (0.3081)	0.0351 (0.6374)	1																		
Debtor Expenses to Assets	-0.0017 (0.9796)	0.047 (0.5276)	0.9747 *** (0.0000)	1																	
Unsecured Expenses to Assets	-0.0238 (0.7224)	0.1135 (0.1262)	0.3382 *** (0.0000)	0.1361 ** (0.0228)	1																
Length of Proceedings	0.0461 (0.4376)	0.1089 (0.1218)	0.0385 (0.5246)	0.0425 (0.4825)	0.0047 (0.9385)	1															
Total Assets	0.1954 *** (0.0029)	0.1345 * (0.0673)	-0.0506 (0.3994)	-0.0424 (0.4796)	-0.0232 (0.6989)	0.0758 (0.2054)	1														
Total Assets Squared	0.1549 ** (0.0185)	0.095 (0.1970)	-0.0275 (0.6473)	-0.0231 (0.7008)	-0.0126 (0.8336)	0.046 (0.4425)	0.9069 *** (0.0000)	1													
Debt-to-Assets Ratio	-0.0864 (0.1977)	-0.1534 ** (0.0392)	0.383 *** (0.0000)	0.2892 *** (0.0000)	0.5007 *** (0.0000)	-0.0949 (0.1182)	-0.0384 (0.5247)	-0.022 (0.7156)	1												
Number of Secured Creditors	-0.0495 (0.4530)	-0.0225 (0.7589)	-0.0163 (0.7975)	-0.0139 (0.8267)	-0.006 (0.9246)	0.0275 (0.6478)	0.0924 (0.1404)	0.0366 (0.5596)	-0.0067 (0.9159)	1											
Number of Unsecured Creditors	0.1038 (0.1023)	0.1267 * (0.0807)	-0.031 (0.6122)	-0.0273 (0.6562)	-0.0043 (0.9435)	0.1266 ** (0.0288)	0.5855 *** (0.0000)	0.435 *** (0.0000)	0.0068 (0.9118)	0.0652 (0.2825)	1										
Secured Debt Includes Banks (Yes/No)	0.128 * (0.0622)	0.0744 (0.3392)	-0.0859 (0.2084)	-0.095 (0.1643)	0.0333 (0.6260)	0.1032 (0.1016)	0.2392 *** (0.0003)	0.2064 *** (0.0020)	-0.082 (0.2300)	0.1094 * (0.0921)	0.2301 *** (0.0003)	1									
Unsecured Debt Includes Banks (Yes/No)	-0.0291 (0.6740)	-0.348 *** (0.0000)	0.0118 (0.8624)	-0.007 (0.9179)	0.0417 (0.5408)	0.0157 (0.8042)	0.3224 *** (0.0000)	0.2929 *** (0.0000)	0.1697 ** (0.0123)	0.1282 ** (0.0497)	0.1453 ** (0.0238)	0.0827 (0.1909)	1								
Arizona Dummy	0.2494 *** (0.0000)	0.0505 (0.4732)	-0.1163 * (0.0519)	-0.1106 * (0.0645)	-0.0116 (0.8462)	-0.0634 (0.2211)	0.0124 (0.8352)	0.0565 (0.3411)	-0.002 (0.9737)	0.0874 (0.1426)	-0.0314 (0.5865)	0.0475 (0.4502)	-0.1034 (0.1001)	1							
Voluntary Petition	0.169 *** (0.0043)	-0.0313 (0.6587)	-0.1298 ** (0.0305)	-0.06 (0.3187)	-0.2976 *** (0.0000)	0.0967 * (0.0631)	0.041 (0.4915)	0.0234 (0.6952)	0.002 (0.9736)	0.0202 (0.7350)	0.0294 (0.6105)	0.1079 * (0.0862)	0.0957 (0.1289)	0.1647 *** (0.0014)	1						
% Equity Owned by Managers	0.1647 *** (0.0051)	0.1613 ** (0.0212)	-0.004 (0.9471)	0.0161 (0.7879)	-0.0704 (0.2405)	0.0635 (0.2207)	-0.1601 *** (0.0067)	-0.1052 * (0.0758)	-0.0989 (0.1005)	-0.0608 (0.3084)	-0.0863 (0.1338)	0.1166 * (0.0629)	-0.18 *** (0.0040)	-0.0405 (0.4318)	0.0481 (0.3527)	1					
Existence of Creditors Committee (Yes/No)	0.154 *** (0.0088)	0.2127 *** (0.0023)	0.0198 (0.7414)	-0.019 (0.7514)	0.2281 *** (0.0001)	0.0808 (0.1188)	0.4188 *** (0.0000)	0.2679 *** (0.0000)	0.0585 (0.3322)	0.1506 ** (0.0112)	0.3216 *** (0.0000)	0.2011 *** (0.0012)	0.0555 (0.3786)	-0.0899 * (0.0805)	-0.0312 (0.5473)	0.0075 (0.8840)	1				
APR Violations	0.0541 (0.3603)	-0.1146 (0.1026)	-0.0135 (0.8223)	0.0015 (0.9801)	-0.0335 (0.5767)	-0.0805 (0.1200)	-0.0022 (0.9705)	-0.0233 (0.6945)	-0.0386 (0.5219)	-0.0238 (0.6902)	-0.0215 (0.7098)	0.1603 ** (0.0104)	-0.0861 (0.1712)	0.2281 *** (0.0000)	0.0763 (0.1405)	0.0733 (0.1544)	0.1238 ** (0.0159)	1			
Fraction Ultimately Paid to Creditors	0.3663 *** (0.0000)	0.6842 *** (0.0000)	-0.368 *** (0.0000)	-0.3107 *** (0.0000)	-0.0835 (0.2817)	0.1092 (0.1445)	0.1735 ** (0.0237)	0.1148 (0.1362)	-0.1492 * (0.0544)	0.0594 (0.4347)	0.1024 (0.1775)	0.2076 *** (0.0098)	-0.2303 *** (0.0043)	0.2769 *** (0.0002)	0.1575 ** (0.0348)	-0.0232 (0.7570)	0.176 ** (0.0178)	0.1689 ** (0.0230)	1		
Days from Filing to Plan Submission (Ch 11 only)	-0.1148 (0.1850)	0.0294 (0.7469)	0.1513 * (0.0553)	0.0437 (0.5443)	0.0508 (0.4807)	0.3867 *** (0.0000)	-0.1259 (0.1094)	-0.0835 (0.2893)	-0.0586 (0.4631)	-0.0847 (0.2946)	-0.0668 (0.4028)	-0.0886 (0.3103)	0.0378 (0.6659)	-0.3611 *** (0.0000)	-0.1726 ** (0.0158)	0.3826 *** (0.0000)	0.0252 (0.7261)	-0.0561 (0.4364)	-0.313 *** (0.0005)	1	
Days from Plan Submission to Plan Confirmation(Ch 11 only)	0.0666 (0.4552)	-0.0859 (0.3593)	-0.0681 (0.4276)	0.0855 (0.3029)	0.2682 * (0.0010)	0.4457 *** (0.0000)	0.1759 ** (0.0376)	0.2126 ** (0.0117)	0.0075 (0.9308)	0.0477 (0.5842)	0.3098 *** (0.0002)	0.0308 (0.7343)	0.1658 * (0.0657)	0.1403 * (0.0901)	0.0054 (0.9484)	-0.052 (0.5313)	-0.0193 (0.8165)	0.0271 (0.7444)	0.1072 (0.2584)	-0.0228 (0.7839)	1
Days from Plan Confirmation to Closure (Ch 11 only)	-0.0228 (0.8041)	0.0481 (0.6197)	0.0414 (0.6358)	0.1503 * (0.0774)	0.0383 (0.6544)	0.4294 *** (0.0000)	0.1381 (0.1116)	0.075 (0.3893)	-0.0447 (0.6120)	-0.0273 (0.7616)	0.114 (0.1982)	0.1876 ** (0.0429)	0.0975 (0.2956)	-0.1099 (0.1978)	-0.0006 (0.9945)	0.0147 (0.8641)	0.1884 ** (0.0263)	-0.0965 (0.2583)	0.2546 *** (0.0084)	-0.1505 * (0.0874)	-0.1575 * (0.0734)

*, **, and *** denote statistical significance at the 10, 5, and 1 percent or better, respectively

Appendix Table A. Correlation Matrix of Variables in the Paper

	Chapter 7 Cases			Chapter 11 Cases		
	Arizona	New York	Total	Arizona	New York	Total
Number of Firms	11	50	61	108	117	225
Voluntary Petition	100.0%	86.1%	87.6%	98.6%	94.9%	96.9%
	100.0%	*100.0%*	*100.0%*	*100.0%*	*100.0%*	*100.0%*
Secured Debt to Total Debt	36.4%	39.6%	38.8%	52.0%	45.7%	48.7%
	6.0%	*25.2%*	*16.7%*	*51.4%*	*42.2%*	*46.6%*
Number of Secured Creditors	1.2	1.5	1.5	12.0	2.7	7.1
	1.0	*0.0*	*1.0*	*2.0*	*1.0*	*2.0*
Number of Unsecured Creditors	30.6	22.0	23.2	107.2	188.3	149.8
	12.5	*8.0*	*10.0*	*16.0*	*28.5*	*21.0*
Secured Creditors include Banks	40.0%	18.6%	21.7%	34.7%	36.9%	36.0%
	0.0%	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*
Unsecured Creditors include Banks	40.0%	31.0%	32.4%	12.0%	20.7%	17.2%
	0.0%	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*
Existence of Creditors Committee				11.1%	31.1%	20.2%
				0.0%	*0.0%*	*0.0%*
% Equity Owned by Managers	43.4	15.4	18.3	29.4	50.5	38.9
	30.4	*0.0*	*0.0*	*0.0*	*50.0*	*5.0*

Appendix Table B
Descriptive Statistics
Mean (*Median*) of the variables in the dataset

Status	Detail		Total Assets ($Million)	Total Liabilities ($Million)	Debt-to-Assets (%)	Length (Days)	Total Recovery (%)	Recovery Rate, Secured	Recovery Rate, Unsecured	Voluntary Petition (%)	Year of Filing	Debtor Expenses to Pre-Bankruptcy Assets	Unsecured Expenses to Pre Bankruptcy Assets	APR Violation (%)	APR Adherence Index	Number of Secured Creditors	Number of Unsecured Creditors	Equity Owned by Managers
Still Operating	As Independent Company	Number of Cases	67	68	67	68	48	49	55	67	68	67	67	68	67	64	67	68
		Mean	23.1	42.7	6.3	891	72.0%	95.7	55.1	95.5%	1998	13.9%	3.9%	11.8%	89.9%	3	248	48.0
		Median	2.5	2.7	1.5	811	82.6%	100.0	50.0	100.0%	1998	2.4%	0.0%	0.0%	100.0%	2	34	41.5
	Merged	Number of Cases	3	3	3	3	3	3	3	3	3	34	34	34	34	31	33	34
		Mean	52.1	57.4	0.9	669	90.1%	100.0	68.3	100.0%	1999	12.6%	0.0%	23.5%	79.6%	2	22	39.2
		Median	4.8	4.2	0.9	700	100.0%	100.0	100.0	100.0%	1999	2.3%	0.0%	0.0%	100.0%	2	9	9.8
Ends Up Dead	Liquidated	Number of Cases	42	43	42	43	31	32	36	43	43	16	16	16	16	16	16	16
		Mean	10.5	10.9	5.1	767	63.2%	96.1	48.4	90.7%	1998	1.3%	0.0%	25.0%	82.0%	4	91	38.3
		Median	1.0	1.9	1.4	633	64.4%	100.0	26.5	100.0%	1998	0.4%	0.0%	0.0%	100.0%	4	65	0.9
	Converted to Chapter 7	Number of Cases	16	16	16	15	8	8	8	16	16	3	3	3	3	3	3	3
		Mean	6.3	7.9	1.7	732	62.5%	81.9	35.9	100.0%	2001	1.4%	0.0%	0.0%	100.0%	1	501	40.0
		Median	0.8	1.0	1.2	913	56.7%	90.0	28.8	100.0%	2001	0.6%	0.0%	0.0%	100.0%	1	300	20.0
	Refiled Chapter 7	Number of Cases	1	1	1	1	1	1	1	1	1	42	42	43	43	41	41	43
		Mean	0.5	1.3	2.9	1186	100.0%	100.0	100.0	100.0%	1998	52.8%	0.5%	9.3%	93.0%	2	70	48.9
		Median	0.5	1.3	2.9	1186	100.0%	100.0	100.0	100.0%	1998	2.6%	0.0%	0.0%	100.0%	1	17	50.0
Ongoing	Refiled Chapter 11	Number of Cases	1	2	1	2	2	2	2	2	2	1	1	1	1	1	1	1
		Mean	4.1	3.1	1.1	971	66.5%	100.0	66.5	100.0%	1999	5.7%	0.0%	0.0%	100.0%	1	48	0.0
		Median	4.1	3.1	1.1	971	66.5%	100.0	66.5	100.0%	1999	5.7%	0.0%	0.0%	100.0%	1	48	0.0
	Still in Chapter 11	Number of Cases	30	29	29	28	15	16	18	31	31	30	30	31	31	23	27	31
		Mean	55.9	45.6	14.9	765	69.3%	84.7	39.7	100.0%	2000	4.4%	5.8%	22.6%	84.4%	43	321	37.6
		Median	2.3	3.1	1.1	875	71.8%	92.5	20.0	100.0%	2000	0.8%	0.0%	0.0%	100.0%	3	34	5.0
Not Available		Number of Cases	34	33	33	34	28	28	28	34	34	1	1	2	2	2	2	2
		Mean	6.5	15.3	2.1	740	70.2%	85.4	55.7	100.0%	1999	9.4%	0.0%	0.0%	100.0%	1	7	50.0
		Median	0.6	0.7	1.1	682	94.4%	100.0	65.0	100.0%	1999	9.4%	0.0%	0.0%	100.0%	1	7	50.0
Total		Number of Cases	194	195	192	194	136	139	151	197	198	194	194	198	197	181	190	198
		Mean	21.4	28.3	6.1	806	69.3%	91.8	51.4	96.4%	1999	19.3%	2.3%	15.7%	87.6%	8	168	43.9
		Median	1.4	1.8	1.2	769	78.3%	100.0	40.0	100.0%	1999	2.0%	0.0%	0.0%	100.0%	2	24	20.0

Appendix Table C. Life After Bankruptcy

Outcome of Chapter 7 and Chapter 11 cases

We investigate the status of the firm as of December 2003. For the firms in our sample that are not liquidated as a result of the Chapter 11, we first look for court records of subsequent filings by the firm, even in different jurisdictions. We check for financial information for the firms in Lexis/Nexis, as well as for accounting information in Hoover's Online. When this information is available, we deem firms "Ongoing". We also call the telephone number of the firm that is available in the court filing. In some cases the respondent gave us detailed information on the status of the firm. Finally, we also check the yellow pages for phone number changes as a result of the bankruptcy, and used this number to gather information on the current status of the firm. The 'Not Available' category corresponds to phone lines that were disconected, and for which additional court information could not be obtained.