The Dynamics of Large and Small Chapter 11 Cases:

An Empirical Study*

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Abstract

This paper shows that the dynamics of Chapter 11 turn dramatically on the size of the business. The vast majority of the assets administered in Chapter 11 are concentrated in a handful of large cases, but most of the businesses in Chapter 11 are small, and the smaller the business, the smaller the distribution to general unsecured creditors. For businesses with assets above $5 million, unsecured creditors typically collect half of what they are owed. Where the business's assets are worth less than $200,000, ordinary general creditors usually recover nothing.

In the typical small Chapter 11 case, the tax collector is the central figure. In small business bankruptcies, priority tax liabilities are the largest unsecured liabilities of the business. Tax obligations are entitled to priority and are obligations of both the corporation and those who run it. Given the large shadow tax claims cast over small Chapter 11 reorganizations, accounts of small Chapter 11 must focus squarely on them.

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By common account, the Chapter 11 reorganization is run for the benefit of the business's general creditors. The unsecured creditors cannot be paid in full and they are entitled to whatever remains after secured creditors are paid off. They bear the loss in the first instance, and they are the ones who benefit if Chapter 11 works well and suffer the loss if it works poorly. The trustee is described as a fiduciary of the general creditors. Chapter 11 calls for the creation of a committee of general creditors who play a central role in the process.[1] The most scathing critiques of Chapter 11 during the 1980s focused on instances in which old equityholders benefited at the expense of the general creditors or how the reorganization was being run in a manner contrary to the interests of the general creditors. Recent critiques have emphasized how the control of secured creditors now enjoy in large Chapter 11 cases comes at the expense of general creditors.[2]

The protection Chapter 11 offers general creditors in the typical case is the recurrent theme of bankruptcy scholarship. Indeed, a recent paper in the *Harvard Law Review* points to the protections that Chapter 11 offered general creditors in the typical case as the principal reason for rejecting alternative schemes.[3] These, it is asserted, would leave the dispersed and unsophisticated general creditors unprotected from large institutional creditors.[4] In this paper, we show why caution must be exercised before making such generalizations.

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[1] 11 U.S.C. §1102.

[2] See, e.g., Warren and Westbrook (2003), and Miller and Waisman (2003).

[3] Warren and Westbrook (2005).

[4] See Warren and Westbrook (2005).

The dynamics of Chapter 11 depend crucially on the size of the case. Large cases consist, for the most part, of contending groups of sophisticated institutional investors. General creditors of every stripe do enjoy substantial distributions in large cases. The central challenge is one of vindicating the absolute priority rule, something most effectively done by taking advantage of the ability to sell the business in the bankruptcy forum, whether piecemeal or as a going concern. Indeed, Chapter 11 itself has increasingly become a forum for the sale of assets.[5]

By contrast, in the small cases, there are few specialized assets beyond the human capital of the owner manager and it is not tied to the legal entity that is in bankruptcy.[6] The principal figure apart from the owner-manager of the business is the tax collector. The tax collector typically enjoys priority over the general creditors, and, most of the time, little or nothing left after he is paid. To the extent one seeks to justify the existing regime (or anything remotely resembling it) in this environment, one must focus on the owner-managers, their tax problems, and not on the rehabilitation of the business entity or the protection of ordinary general creditors.

Part I of this paper discusses the dynamics of Chapter 11 corporate reorganization. In Parts II and III, we show how small corporate Chapter 11s are different by examining evidence from the largest single database of Chapter 11 filings to date. Part IV concludes. Despite some departures from the absolute priority rule, existing Chapter 11 practice with respect to large businesses, given its extensive use of market sales, increasingly resembles market-based alternatives proposed by academics and often seen in other jurisdictions. Small

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[5] See Baird and Rasmussen (2002).

[6] Morrison (2003).

Chapter 11 cases—the vast majority of all cases—are another matter altogether. One might be able to justify existing Chapter 11 in small cases, but such a justification can have nothing to do with the benefits it provides ordinary general creditors. Defenders of the status quo who confront the facts have much work to do.

I. The Dynamics of Chapter 11

Large Chapter 11 cases have been extensively studied, and the basic dynamics of these cases are relatively well understood. In recent years, more than eighty percent of the Chapter 11s of large publicly traded businesses followed one of two patterns.[7] The institutional lenders of a financially distressed large business reach a deal with each other on how to restructure an insolvent business and use the bankruptcy process to wipe out equityholders and quell whatever dissent that might exist among their ranks. Alternatively (or sometimes together), the institutional lenders file a Chapter 11 in order to effect a sale of the assets. In many instances, Chapter 11 provides the easiest way to assure buyers that they will acquire clean title and enjoy assets free of old liabilities. In the few other large cases, the ability to sell the assets colors the process and the dominant feature is again a large degree of control exercised by the senior institutional lenders. The days in which the old managers use the system to keep their jobs and protect the old equity are gone.[8]

The distributional consequences of this regime are twofold. Absolute priority is, for the most part, respected. Equity is commonly completely wiped out in

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[7] See Baird and Rasmussen (2003).

[8] See, e.g., Bradley and Rosenzweig (1992) and Bhandari and Weiss (1993).

large reorganizations.[9] When a business has assets worth more than $5 million, secured creditors received 94% of what they are owed.[10] Such a recovery rate is significantly higher than it was in the 1980s.[11] Moreover, using market mechanisms and deferring to agreements struck before the bankruptcy began has now changed dramatically. During the 1980s, only 12% of large Chapter 11s implemented a previously negotiated deal or was an asset-sale.[12] Senior creditors are able to control the bankruptcy process in recent years to an extent unimaginable only a decade or so ago.[13] Through the control they exercise, especially over postpetition financing, the senior creditors are in the driver's seat in a way not seen previously.

These changes have altered the debate about large Chapter 11 cases. For some, these changes are unwelcome.[14] One can argue that whatever departures from absolute priority that exist in these cases are not of much importance. After all, one cannot assess departures from absolute priority with precision in a Chapter 11 process in which consensual plans of reorganization dominate. A consensual plan in which senior creditors receive only 94 cents on the dollar may reflect a departure from absolute priority or it may reflect a fair settlement of potential litigation over whether the senior creditor was in fact entitled to

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[9] See Baird and Rasmussen (2002).

[10] Bris et al. (2005).

[11] See Franks and Torous (1989) and Weiss (1990)..

[12] This statistic is drawn from Lynn LoPucki's Bankruptcy Research Database.

[13] Skeel (2004).

[14] See, e.g., Kuney (2004) ("secured creditors, capitalizing upon agency problems to gain the help of insiders and insolvency professionals [have] effectively take[n] over – or hijack[ed] – the chapter 11 process and essentially created a federal unified foreclosure process"); see also Westbrook (2004).

priority. A senior creditor is entitled to priority only if its security interest is properly perfected and if it has not received a voidable preference or fraudulent conveyance. Moreover, some distribution to junior creditors is to be expected merely because the valuation of the business's assets is usually uncertain. Whenever there is no market sale that puts a fixed dollar value on the business, the uncertainty that comes with any valuation process, even one done by unbiased experts, creates option value for junior claimants that are, in expectation, out of the money.[15]

There are, of course, large Chapter 11 cases that do depart from absolute priority. In *Qualitech Steel*, for example, there was an outright sale of the assets and no one disputed their value was less than what the senior creditors were owed. Nevertheless, the junior creditors still received a small distribution, one that reflected the cost of the procedural rights that the junior creditors could invoke that would slow down the sale of a business.[16] Senior creditors were better off paying $10 million to junior creditors than cramming down a plan over some number of months when the business itself was losing several million dollars a week.

The inefficiencies that arise from departures from absolute priority may not be large relative to the other costs that necessarily accompany a corporate reorganization. Indeed, some have argued that, far from failing to vindicate the absolute priority rule, Chapter 11 has gone too far in the other direction. In their view, the Chapter 11 process should not be run for the benefit of secured creditors. It should not be the forum for an asset sale that works largely or exclusively to their benefit or a place to implement a plan of reorganization that

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[15] See Baird and Bernstein (2004).

[16] See Mellon Bank v. Dick Corp., 351 F.3d 290 (7th Cir. 2003).

squeezes out those junior to them. They should be force to rely on whatever rights they have outside of bankruptcy. [17]

We now live in a world in which the senior creditors, not the junior ones, sometimes favor the Chapter 11 forum. Indeed, senior creditors are the ones who at times resist the market sale and prefer a court-supervised restructuring. If the senior creditors can persuade the bankruptcy judge that the assets are worth less than what they are owed, they may be able to confirm a plan of reorganization in which they end up with the equity and those junior to them are wiped out. We can even see cases, Adelphia Communications being one recent example, in which the junior investors are the ones pressing for a market sale and the senior ones pushing for a reorganization.

As we have set out elsewhere, we favor pushing Chapter 11 still further in the direction of regimes that defer to the wishes of the investors in the business and make greater use of markets.[18] In our view, such regimes are more likely to put assets to their highest valued use and protect the rights of all concerned. No matter what view one takes of the merits, however, changes in Chapter 11 practice over the last 15 years close the gap between Chapter 11 and other regimes that make more explicit use of the market and grant senior creditors greater control.

Much less is known about the typical Chapter 11 case, especially with respect to the treatment accorded ordinary general creditors. It is widely acknowledged

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[17] See Westbrook (2004).

[18] See Baird (1986) and Bris et al. (2005). Many others share this view: Adler and Ayres (2001), Bebchuk (1998), Aghion et al. (1992), Roe (1983), Schwartz (1988).

that general creditors in small cases are "nonadjusting."[19] There are a substantial number of suppliers and individuals owed small amounts of money. They cannot adjust their interest rates to take account of the circumstances of a particular debtor and their claims are too small to justify active participation in a reorganization. Defenders of Chapter 11 argue that it protects these creditors in a way that *contractarian* alternatives cannot. Indeed, some have gone so far as to suggest that the benefits Chapter 11 provides these nonadjusting creditors make it impossible to defend contractarian alternatives to Chapter 11.[20]

According to this claim, Chapter 11 protects small general creditors who cannot bargain for special treatment. They cannot afford to participate actively in the process. Contractarian regimes, it is asserted, offer no protection for these "nonadjusting" creditors and Chapter 11 does. This argument is not easy to understand.[21] Those who propose contractual alternatives to Chapter 11 insist on rigorous adherence to the absolute priority rule, under which small nonadjusting creditors are entitled to the same treatment as institutional lenders who enjoy the same priority under nonbankruptcy law.[22] Nonadjusting creditors should fare as well in a contractarian regime as in Chapter 11. Their priority rights (whether created by contract or by nonbankruptcy law) are respected under both.[23] If the

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[19] See Bebchuk and Fried (1996).

[20] See, e.g., Warren and Westbrook(2005).

[21] For an extended critique, see Schwartz (1979).

[22] See Rasmussen (1992) and Schwartz (1979).

[23] One can, of course, argue that some now treated as general creditors ought to be entitely to priority over general creditors and even secured creditors. But this does not distinguish contractarians from the defenders of traditional Chapter 11. Indeed, one of the earliest and most vocal proponents of the idea that tort victims should enjoy priority over secured creditors is Barry Adler, one of the most vocal contractarians. See Adler (1993).

contractarian alternatives bring about a cheaper and more effective process for reorganizing a business without compromising nonbankruptcy rights, nonadjusting creditors may be better off.[24]

But even if contractarian alternatives to Chapter 11 for some reason fail to respect the rights of nonadjusting creditors, a defense of Chapter 11 that rests on the benefits it provides general creditors depends crucially on the assumption that these creditors receive a distribution of some kind in Chapter 11.[25] If they receive nothing in Chapter 11, they cannot fare worse under any alternative regime. Previous empirical work has not focused on the distributions that creditors receive in small cases. Those who have argued that Chapter 11 protects small creditors in the typical case have therefore been forced to assume that one can extrapolate from what is known about larger cases, where unsecured creditors do receive significant distributions.[26]

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[24] Bebchuck and Fried (1996) identify a potential inefficiency loss associated with nonadjusting creditors. Institutional creditors will take on more secured debt than they would in the absence of such creditors. The costs of taking additional security interests (presumably extra filing fees and paper work) are therefore socially wasteful. These efficiency losses seem trivial. More to the point, Bebchuk and Fried do not suggest that, apart from tort creditors, nonadjusting creditors fail to enjoy an interest rate that fully compensates them ex ante for the treatment they receive in Chapter 11. In any event, the extent to which secured credit is or is not inefficient is not properly a bankruptcy question, as security interests are creators of state law and, at least with respect to the mine run of business debtors, secured creditors enjoy their priority rights outside of Chapter 11.

[25] Warren and Westbrook (2005) acknowledge this point explicitly.

[26] Warren and Westbrook (2005) do exactly this. They concede that there is "some evidence that Chapter 7 liquidations pay little," but cite an unpublished study that shows that in cases involving businesses with assets of $200 million or more, plans call for payments to general creditors that average 78% and argue,

This superficially plausible assumption—a small business in Chapter 11 is merely a miniature version of a larger one—is widespread, but unfounded. Small businesses in Chapter 11 (and the vast majority are small) are qualitatively different from larger ones. A business with more than $5 million in assets looks nothing like one that has less than $200,000 in assets. Indeed, in the typical small Chapter 11 case, nonpriority creditors receive little or nothing. In the next part of this paper, we describe a dataset two of us have assembled and show how the world of the typical Chapter 11 case is different from the more familiar world of large cases. We go on to use it in Part III to show that the typical business in Chapter 11 has a capital structure utterly unlike those of larger businesses and that the presence of the tax collector fundamentally changes the dynamics.

II. Data Description and Methodology

Our sample consists of the corporate Chapter 11 bankruptcies in the District of Arizona and the Southern District of New York between 1995 and 2001, and it is similar to the one used in Bris, Welch, and Zhu (2005).[27] The sample excludes dismissals or transfers to other courts, as well as "pre-packs", therefore it consists only of "pure" Chapter 11 cases. After eliminating and consolidating such cases, there were 139 unique Chapter 11 events. Out of the 139 firms, only 11 are publicly-traded companies. The court record for each case consists of the bankruptcy petition and supporting documents, including a schedule of assets and liabilities. In addition, the record contains all the motions filed in the case, supporting memoranda, the plan of reorganization and the disclosure statement. The documents were available in electronic form in the PACER system each of

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without empirical evidence, "[t]he typical Chapter 11 cases probably lie somewhere between these extremes."

[27] See footnote 10.

the bankruptcy courts maintains. From PACER, we extracted information on firm characteristics, public status, creditor characteristics, judge characteristics and behavior, expenses, duration of proceedings, creditor recovery rates, and case outcome.[28] This dataset remains the largest and most comprehensive sample of corporate bankruptcies assembled for an academic paper. Because we have examined every case filed in these two districts during the relevant time period, there is no issue of sampling bias.[29]

In this paper, we use the information in the dataset on the assets and liabilities of each debtor. Our dataset does not include cases that are converted to Chapter 7 or dismissed from bankruptcy altogether. These comprise two-thirds of all corporate Chapter 11 filings. The cases that were converted were much smaller than the remaining businesses in our sample, with median reported asset values of only $110,000, as opposed to asset values of more than $1 million in our sample. We do not have data on the cases that were dismissed, but these were likely smaller still, as bankruptcy judges tend to convert cases to Chapter 7 rather than dismiss them when there are assets.[30] Given that our focus is on the minority of Chapter 11 cases that succeed, our conclusions—as negative as they are—put Chapter 11 in a more favorable light than it would appear if we were to include the failures as well as the successes. More specifically, the typical

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[28] 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. For greater detail about the data, see Bris et al. (2005).

[29] One can argue that there is a selection bias in the sense that some firms prefer Chapter 11 to Chapter 7. We deal with this later in the paper by using Heckman regressions.

[30] See Baird and Morrison (2005).

business would be smaller and the benefits general creditors enjoy even more modest.[31]

We note at the outset several limitations of the dataset. The standard forms filed in bankruptcy court leave much to the discretion of each business. Some firms report values that exclude intangible assets, while others include them. Reported numbers are also not necessarily market values—especially for small businesses. Quite a number omit information altogether. As a result, we have had to drop a number of businesses from our sample. Debtors have an obligation to provide such information, but are not likely to face sanctions (such as dismissal of the case) for failing to provide it. Someone (such as the United States trustee) might call them to task, but this possibility provides little incentive to provide the information, as the debtor faces no sanction other than having to provide the information that should have been provided in the first instance.

Moreover, the information in question may not be available. Small businesses do not have balance sheets that comply with GAAP. Without such a constraint, the owner-managers who complete the forms have every incentive to put the best possible face on things. Hence, the value ultimately realized by creditors is far smaller than what the schedules suggest. The difference between scheduled and realized assets values increases as the case becomes smaller. These data collection difficulties likely make the median business in our sample larger than the median business that successfully confirms a plan in Chapter 11.

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[31] Other studies have included both and show much lower asset values. See Morrison (2003) who uses 1998 data on Chapter 11 filings in the Northern District of Illinois, Eastern Division, and finds that 75% had less than $1 million in assets, and about 50% had fewer than $100,000 in assets. Warren and Westbrook (1999) use 1994 data on Chapter 11 filings in 23 districts and find that 70% had less than $1 million in assets, and 50% had fewer than $351,000 in assets.

Liabilities are set out in schedules the debtor files with the court. We have two measures of asset value, prebankruptcy book values and postbankruptcy payout values. We obtained the postbankruptcy payout values by examining the declaration of the distributions. Our exit valuations are the sum of (interim and final) expert fees and creditor recovery—some of these were explicitly reported to be zero. (We never impute zero for missing or dubious values.) Exit valuation serves as a better valuation measure because it reflects the actual outcome of bankruptcy cases. Earlier research typically measured legal fees as a fraction of reported assets at entry into bankruptcy. Such fees may appear relatively small if at-entry bankruptcy assets were either overstated or if the value of the assets dissipated during the course of the Chapter 11 case.

In addition to information on assets, we also use information on total liabilities, liabilities to secured and unsecured creditors, and liabilities to priority vs. nonpriority unsecured creditors. The Bankruptcy Code mandates that tax claims have priority to other unsecured claims.[32] Hence, we collected by hand the claims made by federal and local tax authorities.[33] The tax authorities involved range from Internal Revenue Service (IRS), to tax authorities at state (i.e. New York Department of Taxation and Finance, Arizona Department of Revenues, Tennessee Department of Revenue), county (i.e. Rockland County, NY, New Haven County, CT, Mariposa County, AZ) and municipal (Town of Scarsdale, City of Phoenix) level. For priority claims, we have information on both the

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[32] See 11 U.S.C. §507(a)(8). Some tax liabilities (such as ones that are many years overdue) are not given priority under §507 or otherwise enjoy priority by virtue of a nonbankruptcy lien that is respected in bankruptcy. These were only a tiny fraction of the tax liabilities in our sample.

[33] Apart from a few real estate tax liens, the tax claims in our sample were almost all unsecured claims entitled to priority under 507(b).

amount of the claim at the start and payout amount towards the end of the Chapter 11 procedure.

Of course, firms, lawyers, unsecured creditors, and managers may have the incentives to overstate assets at Chapter 11 exit. Because it is not clear how accurate Chapter 11 postbankruptcy values are, and because we suspect some padding of value at bankruptcy exit, we tracked the firms after they left Chapter 11. For our 139 Chapter 11 cases, we could not locate 52 firms post bankruptcy. Of the remaining 87 firms, 5 still remained in the original bankruptcy process. Thus, we had 82 Chapter 11s for which we could determine eventual fate: 7 firms emerged and later filed for Chapter 7, and 28 firms were later liquidated. Almost one third (42 businesses) continued as independent companies, one merged, one refiled for Chapter 11. It seems likely that many of the businesses that left Chapter 11 only to fail again may have overstated their assets values even at the end of the case.[34] In this case, our results again likely overstate the benefits general creditors enjoy in Chapter 11.

[INSERT TABLE 1 HERE]

Finally, we collected information on compensation to professional services during the bankruptcy. While they typically amount to less than 5% of reported prebankruptcy assets values in large cases, they consume a much higher proportion of the assets actually distributed at the end of the case. We separately collect information on how much lawyers, accountants, unsecured creditor

[34] Kahl (2001) shows that in about one third of the 102 firms in his sample of Chapter 11 cases, the firm survives as an independent company.

committees, trustees, and other professional services were paid. We then sum the total of the professional fees as the total compensation paid for professional services.

To assess the payout available for general creditors, we total the secured claims, priority unsecured claims, and professional fees and subtract this amount from the total asset value. We use postbankruptcy payout asset value in our primary analysis and also verify it with prebankruptcy book asset values. To gain more understanding about the dynamics of negotiation during the bankruptcy procedure, we also compute the ratio of priority unsecured claims to total unsecured claims and total claims. The larger the tax claims relative to the unsecured claims, the larger the role the tax collector is likely to be playing in the case.

In the next part of the paper, we use these data to explore the dynamics of Chapter 11 in the typical case. Here, we want to underscore the one feature of the data that stands out above all the others. Large businesses in Chapter 11 are radically different from the small ones. An average firm among those with assets above $5 million has more to distribute than the sum of postbankruptcy assets for all firms with assets below $1 million combined, even though these businesses make up half of the entire sample. While serious bargaining among many players takes place in the megacases in which millions or billions are at stake, bargaining is largely absent in smaller cases, as there is no ambiguity about how the losses are borne. In the typical case, secured creditors are paid, the lawyers are paid, and the balance goes to the tax collector. Little or nothing remains for anyone else. An image of Chapter 11 as "an economic Judgment

Day"[35] in which diverse stakeholders gather to allocate losses sensibly and fairly cannot be squared with the facts, at least not in the typical small business case.

III. Bankruptcy Outcomes and Business Size

In this part, we explore the differences between large and small business. We divide businesses according to assets available for distribution at the close of the case. We primarily depend on the final payout value of assets at the end of bankruptcy cases. Twelve percent of the all the businesses in the sample (17 out of 139) have assets less than $200,000. About one third of firms (45 firms) have assets greater than $200,000 but smaller than $1 million. Twenty three percent are those with assets between $1 million and $5 million and the remaining one third of firms have assets greater than $5 million.[36]

As we have discussed, prebankruptcy book value of assets is not as reliable as postbankruptcy distributions. The results, however, are similar (non reported). Chapter 11 debtors seem bigger than when we use postbankruptcy numbers, but the basic pattern is the same.

Only seventeen percent (24 out of 139 firms) have fewer than $200,000 in post-bankruptcy assets. About one third of the firm (46 out of 139 cases) fall into the category of firms with assets between $200,000 and $1 million. One quarter of firms (29 out of 139) have assets between $1 million and $5 million and the remaining thirty eight percent of firms have assets greater than $5 million.[37] All public firms in our sample are larger than 5 million in assets (the average size of our 11 public companies is about $120 million, see Table 1.)

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[35] See Warren and Westbrook (2005).

[36] See Table 1.

[37] See Table 1.

To understand the dynamics of any reorganization regime, what matters is not merely the value of the assets, but rather the relationship between liabilities and assets in each case. It is in this relationship that we can observe most starkly the difference between large and small cases. Businesses with more than $5 million in assets average 5 secured creditors and more than 400 general creditors. Public companies have on average 8 secured creditors and 860 unsecured creditors. In contrast, businesses with fewer than $100,000 in assets average only one or two secured creditors and fewer than 20 general creditors. For firms with assets above $5 million dollars, two-thirds of the debt is secured. For firms with less that $200,000, less than one quarter is secured. Banks hold the secured debt in 70% of the cases in which assets exceed $5 million, but banks hold less than 25% of the secured debt when the firm has assets of less than $200,000 (never for assets below $100,000!).[38]

As we discuss in greater detail below, unsecured creditors do better in the case of large businesses. When the assets of the business is greater than $5 million, unsecured creditors will collect sixty cents on the dollar, even if the absolute priority rule is respected and senior creditors are paid every penny they are owed (as they are in about 80% of the cases). In most businesses when the assets are less than $200,000, nonpriority general creditors receive less than 10% of their claim.

Small businesses are fundamentally different from large ones. A $5 million business has an identity that is distinct from the person who owns it. The business can be sold and run by a different group of managers. By contrast, a small business is not appreciably different from the person who runs it. This entrepreneur typically runs a series of businesses over his career, and the

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[38] See Table 1.

challenge he faces is one of finding the right match between his human capital and the suitable business, in much the way most people go from job to job until they find one most suitable for them.[39]

While financially distressed small businesses make up the vast majority of Chapter 11 filings, the vast majority of financially distressed small businesses never file for Chapter 11. Over a million small businesses close each year,[40] but only 10,000 file for Chapter 11.[41] Serial entrepreneurs often have no need for Chapter 11 when they shift from one business to another. An entrepreneur who runs a delivery business may have no creditors other than the lender that financed its cars. The entrepreneur can abandon this business and start a different one merely by paying off the lender or by turning over the keys to the cars. Even if the business incurs substantial debts, the entrepreneur can simply dissolve the corporation under nonbankruptcy law and start another. Alternatively, if the entrepreneur needs a way to show creditors that the corporation has no assets, he can file a Chapter 7 petition.

A. Tax Priority Claims

Identifying the special circumstances that lead a small business to file a Chapter 11 is the great challenge facing bankruptcy scholars. The most striking feature of the small businesses in Chapter 11 is the role that the tax

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[39] Baird and Morrison (2005).

[40] For U.S. Department of Labor Statistics on employment dynamics, see http://data.bls.gov/servlet/surveyOutputServlet?jrunsessionid=1096866435715206311 (last visited Oct. 3, 2004) (showing that 1,310,000 private businesses closed in 2003).

[41] In 2004, there were 9186 Chapter 11 business filings. The latest bankruptcy filing statistics can be found at www.uscourts.gov.

collector plays. In Table 2 we report the tax claims, classified by the size of the business. For businesses with more than $5 million in assets, tax liabilities entitled to priority accounted for only 2.1% of all debt and most businesses owed none at all. This fraction is 2.8% in public companies. By contrast, more than two-thirds of businesses with assets worth less than $200,000 had unpaid tax obligations and these constituted around a quarter of all debt. The need to resolve tax obligations is the engine that drives the typical small Chapter 11 case. To justify much of modern small Chapter 11 practice, one must confront the role that the tax collector plays. The tax collector alters the dynamics of Chapter 11.

[INSERT TABLE 2 HERE]

Small businesses in financial distress owe little in the way of income tax. Their tax obligations are nevertheless substantial. Employers are required to withhold employee income and social security taxes and put them in a segregated account. Sales taxes also loom large for small businesses. Large businesses are structured in such a way that segregated tax accounts are rarely invaded to meet other obligations. Such a diversion requires the cooperation of several individuals, and salaried and relatively mobile employees of a large business do not work in concert even to save the company, given the risk of criminal sanctions and the prospect of being personally liable for these obligations (an obligation that is not dischargeable in bankruptcy).

The owner-managers of small businesses are more likely to succumb to temptation. They invade the trust funds in the hope that their business is facing only a temporary cashflow problem and they can replace the money before it is missed. By the time of the Chapter 11, the owner-manager is confronting the

possibility of being held personally liable for the payroll taxes and sales taxes that have not been paid. Unlike the obligations owed to unpaid suppliers and other general creditors, these obligations are personal obligations of the owner-manager, not just the limited liability corporation. In the absence of these tax obligations, the owner-manager would be free to walk away from the business and start a new one afresh. The tax obligations prevent him from doing this. Indeed, small firms sometimes file for bankruptcy because of tax liabilities, and the center of their restructuring is focused on the bargaining between the owner-manager and the tax collector. The business may have little or no value as a going concern, but the owner-manager may seek Chapter 11 protection because it offers her the best way to deal with the tax collector and avoid personal liability for the unpaid taxes.

It would be a mistake, however, to assume that the tax authorities take an active role in the bankruptcy case or do much to hold secured creditors in check. Even if one counted the tax collector as a nonadjusting creditor entitled to special protection when a business reorganizes, one could not justify Chapter 11 on that account. Distributions to the tax collector in Chapter 11 are in fact less than what they would be in a simple contractarian world that rigorously enforced the absolute priority rule. Nor do general creditors enjoy vicarious benefit from the presence of the tax collector in the typical case. The presence of a tax obligation is associated with a greater recovery for tax and nonpriority general claims, but this effect is statistically significant only for large businesses. The presence of a federal tax claim has no effect on the ability of the senior lender to enforce its priority. Only the presence of municipal tax collectors affects the ability of secured creditors to enforce their priority positions.[42]

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[42] See Table 2.

B. Remaining Assets

We next examine what exactly happen to nonpriority unsecured creditors, those who are mostly likely to be 'nonadjusting' creditors who cannot fight for their claims. If firm size does not matter, we would expect the recovery rate to be similar across firm sizes. However, if firm size indeed matters to firm fundamentals and the dynamics of bargaining process, we would expect considerably different outcomes for unsecured creditors between large and small bankruptcy cases.

[INSERT TABLE 3 HERE]

To examine what nonpriority unsecured creditors recover from the Chapter 11 cases, we calculate the remaining assets left to be distributed among non-priority unsecured creditors for each case defined as follows:

Remaining Assets = Total Assets - Secured Claims - Priority Unsecured Claims - Professional Fees

We again use two measures of total asset value: the book asset value from prebankruptcy filings and the real payout reported towards the end of bankruptcy. Table 3 reports the dollar value of remaining assets by size category, using the pre-bankruptcy value of total assets in the expression above. While there are about $29 million left on average for firms above $5 million in size (within this group, $70 million left for the subset of public companies), firms smaller than half a million have about $50,000 left for unsecured creditors (the value of remaining assets is sometimes negative). Results in medians are similar. In the whole sample, one quarter of the firms end up with nothing left for

unsecured creditors (second-to-last column), this number is 50% for small firms, and between 17% and 21% for larger firms.

Relative to non-priority unsecured claims, remaining assets represent a 25% in median. However, it is -1.33% for firms below $100,000. That is, average (median) unsecured creditors can recover 25 cents for every dollar they are owed, indicating not much left to be distributed to nonpriority creditors. The mean recovery rate is 50%, versus a median of 25%. The big difference between mean and median measure indicates considerable cross-sectional difference in recovery rate and polarizing pattern in the distribution. The median is a better measure for the purpose of the current study because it emphasizes the difference between small and large firms.

In Table 4 we report the value of remaining assets using the post-bankruptcy values to measure the value of assets. The recovery rate for nonpriority creditors in very small cases is -32 cents on the dollar, and it is 36 cents for firms above $5 million.

[INSERT TABLE 4 HERE]

The recovery rate for nonpriority creditors is overall modest for small cases. In 62 firms with postbankruptcy assets below $1 million (47% of the whole sample), unsecured creditors only recover less than ten percent of what they are owed. In about 40% of these firms, nonpriority, unsecured creditors do not recover anything. This pattern is particularly striking for very small cases whose assets are below $200,000. Nonpriority creditors cannot recover anything after debtors pay more senior creditors (median ratio of remaining assets to non-

priority unsecured claims is -4%). In half of the small cases, nonpriority creditors recover nothing.

In contrast, for large firms with assets above $1 million dollars, unsecured creditors collect about two thirds to all of what they are owed. In only 17 of the 77 firms (22%) are unsecured creditors left with nothing. The recovery rate does not increase monotonically as firm size increases, indicating that once firm size passes a critical threshold, size does not have great influence on bankruptcy outcomes. The pattern is similar when we use pre-bankruptcy assets.[43]

We should also note that the businesses that file in the Southern District of New York may be different from those that file in the District of Arizona. As a group, nonpriority unsecured creditors recover almost twice as much in Arizona than they do in New York court. In the Southern District, businesses must be substantially larger (assets of more than $1 million) before nonpriority general creditors enjoy a meaningful recovery. In both jurisdictions, however, the presence of the tax collector remains the striking feature of the typical case.[44]

C. Are Fees the Reason?

We explore now whether fees (reimbursement to professional, which includes lawyers, attorneys, accountants, investment banks, and bankruptcy experts) cause remaining assets to be low at the outset of the case. During a typical bankruptcy case, the judge disburses funds to cover expert expenses, which are reimbursed by the firm to unsecured creditors.[45] Bris, Welch, and Zhu

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[43] See Table 3.

[44] See Table 2.

[45] See Bris et al. (2005).

(2005) show that the median Chapter 11 case consumes 8.1% of pre-bankruptcy firm value in legal fees.

In Table 5 we report the value of remaining assets calculated pre- and post-fees.[46] While nonpriority creditors recover 25 cents on the dollar pre-fees, they recover 12 cents post-fees. That is, fees account for 13% of the loss in value. However, differences between small and large cases persist. In a small case, and before paying legal fees, there is nothing left even before paying fees. For cases above $5 million, there are funds to satisfy 61% of the nonpriority claims in median before fees, and 32 cents on the dollar, post-fees. Amazingly, in public companies there are funds to satisfy 88% of the nonpriority claims, even after fees.

[INSERT TABLE 5 HERE]

The evidence thus far underscores the distinction between firms of large and small sizes through bankruptcy procedure. In small bankruptcy cases that make up the majority of the sample, there is little to be distributed among nonpriority unsecured creditors. The empirical evidence suggests that the protection of such small creditors may not be important, at least not under existing Chapter 11. To the extent that the data say anything about how to choose between Chapter 11 and ones based more on contractarian principles, they suggest more attention ought to be paid to the costs of the bankruptcy process in small cases.

While nonpriority creditors receive little or nothing in small cases once priority claims and administrative expenses are taken into account, there is little

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[46] The calculation pre-fees assumes that Remaining Assets = Post-Bankruptcy Assets – Secured Debt – Priority Claims.

difference between large and small cases if we exclude administrative costs. Costs in small Chapter 11s do not seem to be large relative to those in large cases as a percent of the schedule asset values, but realized asset values tend to be lower in the small cases. Moreover, administrative expenses have a disproportionate impact on distributions to the other general creditors because priority tax claims take a much larger share of unencumbered assets in small cases.

The distributional dynamics of Chapter 11 in small cases can be stated simply. Secured claims, priority tax claims, and the costs of the bankruptcy process exhaust the estate in the typical case when the business has fewer than $200,000 in assets. These cases have relatively few nonpriority general creditors, and they are unlikely to receive any distribution at the end of the case. We emphasize again that we are focusing on those Chapter 11 cases that are counted as successes, those in which a plan of reorganization is confirmed. Once one takes into account those cases that are dismissed or converted (and these are again about two-thirds of all cases filed), the benefit Chapter 11 brings nonpriority general creditors in all but the largest cases becomes even more modest.

Figure 1 below summarizes our findings. For small Chapter 11 cases, most of the state serves unsecured priority claims (taxes), and nothing is left for unsecured creditors. Note that the typical small case has no secured claims. However, for cases above $5 million, most of the estate belongs to secured creditors, and a small part goes to compensation of professionals (the median value of unsecured priority claims in large cases is zero). Public companies in our sample are not terribly under-water, but the figure suggests that in these cases

priority claims are of marginal importance, as are fees. Pre-fees, remaining assets are positive in all size categories (see Table 5). Post-fees, they are negative

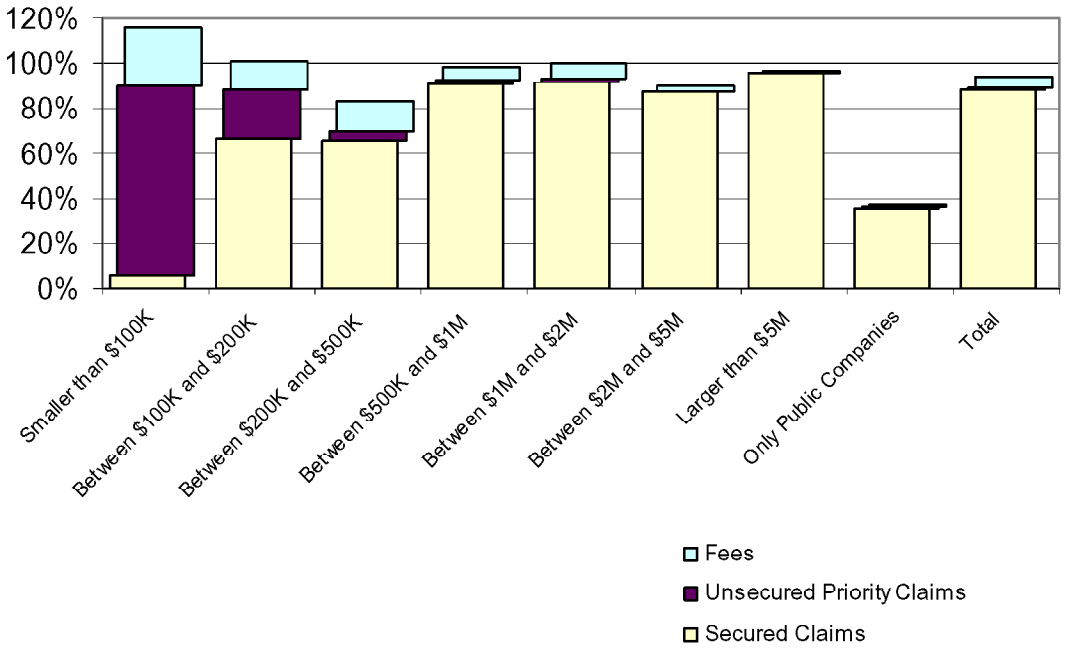


Figure 1. Distribution of Post-Bankruptcy Assets among Secured Claims, Unsecured Priority Claims, and Fees. For each size category, we calculate the ratio of secured claims, priority claims, and total fees, to the post-bankruptcy value of assets (=100%).

for firms smaller than $100,000. Figure 1 illustrates the big difference between small and large Chapter 11 cases.

IV. From Potential Recovery to Actual Recovery

Table 1 shows that unsecured recovery rates average 50%, even for the smallest size Chapter 11 firms. This result is at odds with our finding in the previous section that in most cases, and especially in small cases, there is nothing left to be

distributed for nonpriority unsecured creditors. An argument can be made that Chapter 11 is efficient to the extent that it guarantees and efficient redistribution of the estate among claimants, and indeed Table 1 shows that APR is violated in favor of unsecured in 37% of the cases, versus a probability of APR violation of 21% for the very large cases.

In this section we study the determinants of actual recovery rates, and in particular of the probability of violating APR. Our main finding is that APR violations are not significantly related to the amount of remaining assets. The main determinants of APR violations are the identity of the judge, the size of the firm, the firm's leverage ratio, and measures of creditor concentration. Moreover, after controlling for other variables, we find that APR violations are less likely in small cases, so the descriptive evidence in Table 1 is misleading.

[INSERT TABLE 6 HERE]

We estimate probit regressions with the probability of APR violation as endogenous variable. Our methodology is similar to Bris, Welch, and Zhu (2005). In Table 6 we report the marginal effects of the independent variables. We control for the ratio of remaining assets to pre-bankruptcy assets,[47] the amount of unsecured priority claims, and an interaction between priority claims, and size-category dummies. We also estimate judge-fixed effects in the last three specifications.[48]

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[47] We do not use post-bankruptcy assets in the denominator because it is endogenous.

[48] We do not include an indicator of public status because in all public companies in our sample APR is fully upheld (see Table 1).

We find that remaining assets do not predict the probability of APR violation. Only in the last two specifications is this variable significant, but with different signs and a trivial marginal effect. Controlling for judge effects, we confirm that, when the firm owes to unsecured priority creditors, APR is violated less often (fourth column). Interestingly, we find that only tax claims by the federal government have a significantly negative effect on APR violations (second and fifth columns), and that priority claims affect the probability of APR violation only in very small cases (third column).

There are several variables that have a significant effect on APR violations. The judge identity is significant (p-values for the judge-fixed effects are less than 1%); APR is violated more often when there is more secured debt relative to total debt; when there are fewer secured creditors (creditor concentration help creditor recovery); when unsecured creditors include banks, and secured creditors do not include banks; and especially, in larger firms (the marginal effects are the largest for the size dummies). Bris et al. (2005) find somewhat different results, but they do not control for priority claims nor remaining assets.

To summarize—after controlling for firm characteristics, unsecured creditors recover less in very small cases, and this is mostly due to having more tax claims from the federal government, having fewer secured creditors, and less secured debt. Therefore there is less to be distributed in small cases (see Section III), and indeed unsecured creditors receive less in these cases.

V. Conclusion

Traditional accounts of Chapter 11 have relied far too long on casual assumptions about the purposes it serves. In this paper, we show that any

justification of Chapter 11 must begin with a recognition that it provides a home to radically different kinds of financially distressed business. Most have assets worth only a few hundred thousand dollars. Of these, most never confirm a plan of reorganization. They are converted or dismissed and leave little or nothing for ordinary general creditors. The story is not significantly different for the small businesses that reorganize successfully. These businesses have secured obligations and tax obligations that approach the value of the available assets. In a word, the typical small business bankruptcy leaves ordinary creditors with little or nothing.

It does not, of course, follow that Chapter 11 is a failure, even with respect to small businesses. One might argue that it provides a useful forum for sorting out the problems that the owner-manager of a small business has with the Internal Revenue Service. Chapter 11 may provide some small entrepreneurs with a sensible way to sort out their financial affairs.[49] But the case for existing Chapter 11 for small businesses in financial distress is yet to be made. It is not enough merely to assert that there are many small creditors in the typical case and they need Chapter 11 to protect them. The cold reality is that Chapter 11 does nothing or close to nothing for ordinary general creditors in the typical small business bankruptcy. However worthy or noble a reorganization law that protected small creditors might be, Chapter 11 is not such a law.

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[49] Baird and Morrison (2005), but do not endorse this possibility..

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Panel A: Summary Statistics

	N	Pre-Bankruptcy Assets (Mean)	Post-Bankruptcy Assets (Mean)	Number of Secured Creditors	Number of Unsecured Creditors	Secured Creditors' Recovery Rate	Unsecured Creditors' Recovery Rate	Secured Debt to Total Debt	Debt to Pre-Bankruptcy Assets	Secured Debt Includes Banks (Y/N)	Unsecured Debt Includes Banks (Y/N)	APR Violation	Forced Petition
Smaller than $100K	9	$67,957	$204,566	1.1	14.7	77.1	46.8	17.1%	418.8%	0.0%	0.0%	37.5%	0.0%
Between $100K and $200K	8	$150,215	$240,147	1.9	24.6	88.5	38.4	28.4%	443.7%	14.3%	0.0%	12.5%	12.5%
Between $200K and $500K	24	$337,375	$441,544	1.9	38.8	92.5	39.7	37.8%	407.8%	20.0%	0.0%	12.5%	0.0%
Between $500K and $1M	21	$735,952	$617,321	2.5	50.2	92.9	47.9	53.4%	156.0%	40.0%	6.7%	38.1%	4.8%
Between $1M and $2M	10	$1,561,199	$1,047,548	4.5	56.7	90.0	66.3	55.4%	85.5%	33.3%	11.1%	20.0%	0.0%
Between $2M and $5M	23	$3,072,300	$2,063,604	2.3	90.3	93.9	55.5	51.4%	118.5%	38.1%	9.5%	21.7%	8.7%
Larger than $5M	44	$60,122,240	$70,679,260	4.7	418.5	94.5	60.0	65.6%	131.9%	71.4%	28.6%	20.9%	0.0%
Public Companies Only	11	$119,538,400	$144,331,200	7.6	859.6	95.0	78.4	48.3%	108.9%	80.0%	70.0%	0.0%	0.0%
Total	139	$19,684,880	$22,804,850	3.1	166.7	92.1	52.3	50.7%	214.2%	41.2%	12.3%	22.6%	2.9%

Panel B: Firms after Chapter 11

% of Firms that...	Are Liquidated	We could not find	Still Exist	Converted to Chapter 7	Refiled for Chapter 11	Filed for Chapter 7	Merged	Are still in Chapter 11
Smaller than $100K	11.1	22.2	66.7					
Between $100K and $200K	22.2	55.6	22.2					
Between $200K and $500K	30.0	40.0	20.0	3.3		3.3	3.3	
Between $500K and $1M	21.7	26.1	34.8	13.0			4.4	
Between $1M and $2M	20.0	30.0	40.0					10.0
Between $2M and $5M	15.4	34.6	38.5	3.9	3.9		3.9	
Larger than $5M	30.4	15.2	45.7	2.2			2.2	4.4
Public Companies Only	18.2		45.5				9.1	27.3
Total	20.5	37.3	30.4	5.3	0.8	0.4	1.1	4.2

Pre-bankrupycy asset is obtained from balance sheet filed by debtors around case opening. Post-bankruptcy asset obtained from exit report toward case closing. Number of secured and unsecured creditors is hand-collected from financial statements filed by debtors. Secured creditors' recovery rate is reported in the exit report toward case closing. Unsecured creditors' recovery rate is calculated as payout to unsecured creditors at case closing divided by the unsecured liabilities. The ratio of secured debt to total debt is calculated as secured liabilities divided by total liabilities reported in financial statement filed by debtors. The ratio of debt to pre-bankruptcy assets is calculated as total liabilities divided by total assets as in financial statement filed by debtor at case opening. 'Secured debt includes banks' is a dummy that equals to if secured creditors include a bank and 0 otherwise. 'Unsecured debt includes banks' is a dummy that equals to if unsecured creditors include a bank and 0 otherwise. APR violation is dummy variable that equals to 1 if junior claim holders get paid before all senior claim holder's claims are satisfied. 'Forced to petition' is a dummy variable that equals to 1 if the debtor is forced to file for Chapter 11.

Panel A: Tax Priority Claims to Total Liabilities

	All Observations					Conditional on Claim > 0				
	N	Total Priority Claims	Federal Taxes	State Taxes	Municipal Taxes	N	Total Priority Claims	Federal Taxes	State Taxes	Municipal Taxes
Smaller than $100K	9	26.7%	16.1%	10.4%	0.1%	7	39.7%	28.8%	15.6%	1.1%
Between $100K and $200K	8	16.1%	5.4%	5.2%	5.5%	5	25.7%	10.7%	10.5%	14.6%
Between $200K and $500K	24	7.2%	1.6%	4.3%	1.2%	17	10.6%	6.7%	12.1%	3.4%
Between $500K and $1M	21	6.9%	4.8%	1.4%	0.7%	14	10.3%	16.8%	2.6%	2.9%
Between $1M and $2M	10	10.2%	1.0%	0.3%	8.9%	6	18.3%	4.4%	2.7%	26.7%
Between $2M and $5M	23	5.8%	0.9%	0.5%	4.3%	13	10.3%	3.5%	1.8%	16.4%
Larger than $5M	44	2.1%	0.7%	0.2%	1.2%	19	4.9%	4.0%	0.8%	6.7%
Only Public Companies	11	2.8%	2.5%	0.3%	0.0%	3	10.1%	13.5%	1.6%	-
Total	139	7.3%	2.8%	2.1%	2.3%	81	12.8%	10.5%	6.3%	9.2%

Panel B: Tax Priority Claims to Total Unsecured Debt

	All Observations					Conditional on Claim > 0				
	N	Total Priority Claims	Federal Taxes	State Taxes	Municipal Taxes	N	Total Priority Claims	Federal Taxes	State Taxes	Municipal Taxes
Smaller than $100K	9	27.7%	16.1%	11.4%	0.1%	7	41.3%	28.8%	17.1%	1.1%
Between $100K and $200K	8	18.2%	5.6%	5.4%	7.2%	5	29.1%	11.2%	10.8%	19.1%
Between $200K and $500K	25	18.0%	2.5%	11.0%	4.5%	17	25.4%	10.2%	29.3%	12.0%
Between $500K and $1M	21	20.0%	10.5%	8.3%	1.1%	14	29.9%	36.8%	15.9%	4.7%
Between $1M and $2M	9	26.2%	1.1%	5.8%	19.4%	5	43.7%	5.3%	28.9%	64.7%
Between $2M and $5M	23	9.9%	1.4%	3.9%	4.5%	13	17.6%	5.4%	12.9%	17.1%
Larger than $5M	44	11.7%	5.1%	0.9%	5.7%	19	27.0%	27.8%	4.4%	31.5%
Only Public Companies	11	6.6%	4.4%	2.1%	0.0%	3	24.1%	24.4%	11.7%	-
Total	139	16.2%	5.3%	5.6%	5.3%	80	28.1%	19.9%	16.1%	21.1%

Table 2. Summary of Tax Priority Claim by Size Category

Total priority claim is the sum of all claims by federal, state, and municipal tax authorities. Federal tax authorities include Internal Revenue Services (IRS). State tax authorities include tax authorities at Arizona, California, Connecticut, Delaware, Hawaii, Illinois, Kentucky, Michigan, Nevada, North Carolina, New York, Pennsylvania, Tennessee, and Utah State. Municipal tax authorities include local tax authorities at Arizona, California, Connecticut, and New York state.

Panel A: Remaining Assets

	N	Mean	Std Dev	Min	25 percentile	Median	75 percentile	Max	% with remainder ≤ 0	% of recovery rate ≤ $10,000
Smaller than $100,000	9	$22,036	$356,790	-$456,858	-$149,451	-$4,976	$75,601	$790,801	50%	63%
between $100,000 and $200,000	8	-$47,950	$229,240	-$404,253	-$240,743	$12,576	$89,141	$298,703	50%	50%
Between $200,000 and $500,000	25	$37,166	$536,586	-$2,140,453	-$11,030	$55,987	$139,343	$784,683	25%	33%
Between $500,000 and $1M	21	$105,088	$188,006	-$110,149	-$21,016	$70,172	$126,812	$599,587	29%	38%
Between $1M and $2M	10	$166,940	$428,364	-$558,127	-$9,414	$6,853	$453,985	$1,049,389	40%	50%
Between $2M and $5M	23	$455,299	$1,009,395	-$2,663,839	$70,314	$213,015	$958,089	$2,956,112	17%	17%
Greater than $5M	44	$29,400,000	$73,000,000	-$14,400,000	$75,003	$950,055	$8,943,122	$318,000,000	21%	23%
Only Public Companies	11	$70,100,000	$67,700,000	-$17,400,000	$13,100,000	$60,100,000	$129,000,000	$162,000,000	9%	9%
Total	140	$9,321,913	$42,800,000	-$14,400,000	-$9,414	$110,673	$731,515	$318,000,000	27%	32%

Panel B: The ratio of remaining assets to non-priority unsecured claims

	N	Mean	Std Dev	Min	25 percentile	Median	75 percentile	Max	% with remainder ≤ 0	% of recovery rate ≤ 10%
Smaller than $100,000	9	2.37%	326.66%	-597.08%	-55.10%	-1.33%	58.09%	612.72%	50%	63%
between $100,000 and $200,000	8	19.76%	67.24%	-50.85%	-23.51%	-1.91%	58.44%	142.91%	50%	50%
Between $200,000 and $500,000	24	15.31%	94.01%	-343.60%	0.05%	18.75%	58.33%	137.12%	25%	38%
Between $500,000 and $1M	21	96.56%	328.87%	-46.34%	-2.54%	23.73%	51.84%	1519.27%	29%	33%
Between $1M and $2M	10	76.37%	162.51%	-36.85%	-11.55%	9.02%	115.88%	505.42%	40%	50%
Between $2M and $5M	23	53.35%	109.64%	-232.22%	14.55%	33.00%	112.46%	372.92%	17%	22%
Greater than $5M	44	55.60%	116.30%	-258.60%	2.44%	51.78%	102.40%	387.78%	21%	33%
Only Public Companies	11	-423.29%	1858.14%	-5690.46%	34.98%	87.38%	133.67%	576%	9%	9%
Total	139	50.76%	178.30%	-597.08%	-2.03%	25.06%	100.20%	1519.27%	27%	36%

Table 3. Remaining Assets for Non-Priority Unsecured Creditors (using Pre-Bankruptcy book value of assets)

Remaining assets to non-priority unsecured creditors is calculated as Total Assets - Secured Claims - Priority Unsecured Claims - Professional Fees, where Total assets is the total pre-bankruptcy book value of assets, secured claims are the liabilities to secured creditors. Priority unsecured claims are made up of federal, state, and municipal tax claims. Professional fees are the sum of compensation to legal experts, accountants, auctioneers, and appraisers. 'Percent of no remainder' is calculated as the number of cases where nothing is left to non-priority unsecured creditors divided by the total number of cases, within each size category. 'Percent of recovery rate less than 10%' is calculated as the number of cases where the recovery rate to non-priority unsecured creditors is less than 10% divided by the total number of cases, within each size category.

Panel A: Remaining Assets

	N	Mean	Std Dev	Min	25 percentile	Median	75 percentile	Max	% with remainder ≤ 0	% of recovery rate ≤ $10,000
Smaller than $100,000	9	-$114,572	$234,041	-$631,769	-$164,635	-$84,289	$62,211	$88,554	63%	63%
between $100,000 and $200,000	8	-$137,883	$267,680	-$564,676	-$375,025	-$36,563	$86,994	$110,800	50%	50%
Between $200,000 and $500,000	24	-$67,004	$531,469	-$2,165,090	-$166,923	$109,190	$209,949	$384,087	42%	42%
Between $500,000 and $1M	21	$223,718	$348,569	-$350,000	-$110,278	$180,191	$467,000	$898,040	33%	33%
Between $1M and $2M	10	$680,592	$958,518	-$1,440,620	$145,192	$881,503	$1,139,364	$1,951,833	20%	20%
Between $2M and $5M	23	$1,463,995	$1,372,603	-$2,967,847	$791,491	$1,233,688	$2,439,834	$3,624,759	4%	4%
Greater than $5M	44	$18,500,000	$54,000,000	-$76,300,000	-$4,157,744	$2,606,733	$15,500,000	$181,000,000	37%	37%
Only Public Companies	11	$100,000,000	$118,000,000	-$680,048	$4,700,002	$60,100,000	$146,000,000	$314,000,000	9%	9%
Total	139	$6,102,021	$31,200,000	-$76,300,000	-$114,200	$258,357	$1,645,890	$181,000,000	33%	33%

Panel B: The ratio of remaining assets to non-priority unsecured claims

	N	Mean	Std Dev	Min	25 percentile	Median	75 percentile	Max	% with remainder ≤ 0	% of recovery rate ≤ 10%
Smaller than $100,000	9	-103.07%	297.38%	-825.67%	-60.75%	-31.62%	47.37%	91.12%	63%	63%
between $100,000 and $200,000	8	-105.68%	333.23%	-921.35%	-46.42%	2.97%	28.56%	105.69%	50%	50%
Between $200,000 and $500,000	24	304.24%	772.09%	-181.95%	-12.56%	24.68%	135.06%	3338.15%	42%	46%
Between $500,000 and $1M	21	839.71%	2232.69%	-76.99%	-8.10%	54.80%	256.99%	9000.00%	33%	33%
Between $1M and $2M	10	-31.75%	1361.44%	-3710.55%	67.35%	124.32%	708.71%	1147.11%	20%	20%
Between $2M and $5M	23	595.45%	1154.33%	-74.04%	39.55%	135.72%	432.98%	4986.36%	4%	4%
Greater than $5M	44	-350.14%	1299.63%	-5646.52%	-113.44%	35.85%	97.92%	1320.41%	37%	40%
Only Public Companies	11	79.48%	44.11%	-40.00%	67.84%	100.00%	100.00%	100.01%	9%	9%
Total	139	157.57%	1379.95%	-5646.52%	-15.41%	54.80%	138.89%	9000.00%	33%	34%

Table 4. Remaining Assets for Non-Priority Unsecured Creditors (using Post-Bankruptcy payout value of assets)

Remaining assets to non-priority unsecured creditors is calculated as Total Assets - Secured Claims - Priority Unsecured Claims - Professional Fees, where Total assets is the total post-bankruptcy payout value of assets, secured claims are the liabilities to secured creditors. Priority unsecured claims are made up of federal, state, and municipal tax claims. Professional fees are the sum of compensation to legal experts, accountants, auctioneers, and appraisers. 'Percent of no remainder' is calculated as the number of cases where nothing is left to non-priority unsecured creditors divided by the total number of cases, within each size category. 'Percent of recovery rate less than 10%' is calculated as the number of cases where the recovery rate to non-priority unsecured creditors is less than 10% divided by the total number of cases, within each size category.

Panel A: Post-Fees

	N	Remaining Assets		Remaining Assets / Unsecured Debt		Remaining Assets / Post-Bankruptcy Assets		Remaining Assets / Pre-Bankruptcy Assets	
		Mean	Median	Mean	Median	Mean	Median	Mean	Median
Smaller than $100K	9	-$100,829	-$10,817	-105.0%	-3.9%	-340.4%	-11.6%	-152.0%	-8.4%
Between $100K and $200K	8	-$75,285	-$1,510	1.0%	-7.2%	-67.1%	-0.7%	-256.8%	4.3%
Between $200K and $500K	24	$3,342	$28,183	-5.5%	9.7%	0.9%	8.7%	-13.5%	15.2%
Between $500K and $1M	21	$61,032	$10,287	-5.3%	4.7%	7.3%	1.3%	8.7%	2.1%
Between $1M and $2M	10	$74,564	$2,095	7.7%	7.5%	4.4%	0.1%	-18.9%	0.1%
Between $2M and $5M	23	$357,083	$137,332	23.5%	33.0%	9.9%	3.8%	-2.1%	9.2%
Larger than $5M	44	$27,300,000	$477,682	-210.8%	32.2%	21.5%	4.7%	14.9%	5.4%
Only Public Companies	11	$70,100,000	$60,100,000	-423.3%	87.4%	53.9%	55.7%	80.5%	62.4%
Total	139	$8,770,406	$47,711	-70.5%	11.7%	-13.5%	4.0%	-21.7%	4.7%

Panel B: Pre-Fees

	N	Remaining Assets		Remaining Assets / Unsecured Debt		Remaining Assets / Post-Bankruptcy Assets		Remaining Assets / Pre-Bankruptcy Assets	
		Mean	Median	Mean	Median	Mean	Median	Mean	Median
Smaller than $100K	9	$22,036	-$4,976	2.4%	-1.3%	-163.5%	-5.2%	-115.3%	0.0%
Between $100K and $200K	8	-$47,950	$12,576	19.8%	-1.9%	-48.2%	7.9%	-242.2%	10.5%
Between $200K and $500K	24	$37,166	$55,987	15.3%	18.7%	11.7%	15.5%	-0.5%	27.0%
Between $500K and $1M	21	$105,088	$70,172	96.6%	23.7%	13.9%	10.9%	20.7%	10.7%
Between $1M and $2M	10	$166,940	$6,853	76.4%	9.0%	11.2%	0.4%	-7.3%	0.4%
Between $2M and $5M	23	$455,299	$213,015	53.3%	33.0%	12.8%	7.3%	6.6%	14.4%
Larger than $5M	44	$29,400,000	$950,055	55.6%	61.8%	24.7%	6.5%	18.4%	6.4%
Only Public Companies	11	$71,300,000	$60,900,000	-415.1%	88.8%	54.9%	57.7%	81.9%	63.6%
Total	139	$9,321,913	$110,673	50.8%	25.1%	2.5%	7.8%	-11.5%	10.4%

Table 5. Remaining Assets, Pre- and Post-Fees

Remaining assets left to non-priority unsecured creditors are calculated as as Total Assets - Secured Claims - Priority Unsecured Claims - Professional Fees, where Total assets is the total post-bankruptcy payout value of assets, secured claims are the liabilities to secured creditors. Priority unsecured claims are made up of federal, state, and municipal tax claims. Professional fees are the sum of compensation to legal experts, accountants, auctioneers, and appraisers.

	Probability of APR Violation	Probability of APR Violation	Probability of APR Violation	Probability of APR Violation	Probability of APR Violation	Probability of APR Violation
Remaining Assets to Pre-Bankruptcy Assets	0.02	-0.047	-0.033	0.015	-0.000*	0.000***
	[0.75]	[0.76]	[0.54]	[0.24]	[1.75]	[2.69]
Total Priority Claims to Unsecured Claims	-0.155			-0.822***		
	[1.25]			[4.80]		
Federal Claims to Total Unsecured Claims		-1.926**			-0.000***	
		[2.06]			[2.93]	
State Claims to Total Unsecured Claims		0.299			0.000***	
		[0.98]			[2.79]	
Municipal Claims to Total Unsecured Claims		-0.049			-0.000***	
		[0.25]			[3.31]	
Assets between $200k and $500K x % Priority Claims			-0.637**			
			[2.16]			
Assets between $500k and $1M x % Priority Claims			-0.11			
			[0.67]			
Assets between $1M and $2M x % Priority Claims			0.374			0.000***
			[1.46]			[2.76]
Assets between $2M and $5M x %Priority Claims			1.465**			-0.000***
			[2.13]			[20.22]
Assets above $5M x % Priority Claims			-0.802			-0.000**
			[1.21]			[2.07]
Total Assets	8.623***	8.232***	8.471***	3.651***	0.000***	0.000***
	[7.29]	[7.84]	[8.57]	[4.73]	[3.01]	[2.81]
Total Assets x (Assets > $100K)	-8.531***	-8.137***	-8.296***	-3.441***	-0.000***	-0.000***
	[7.11]	[7.72]	[8.23]	[4.37]	[3.00]	[2.84]
Total Assets x (Assets > $1M)	-0.067	-0.067	-0.136	-0.173	0	-0.000***
	[0.54]	[0.55]	[1.11]	[1.42]	[0.84]	[2.74]
Total Assets x (Assets > $10M)	-0.025	-0.027	-0.037**	-0.039**	-0.000***	-0.000***
	[1.37]	[1.54]	[1.96]	[2.55]	[2.85]	[2.79]
Secured Debt to Total Debt	0.365***	0.266*	0.329*	1.028***	0.000***	0.000***
	[3.34]	[1.85]	[1.95]	[4.24]	[2.96]	[2.91]
Debt-Assets ratio above 100% (Y/N)	0.208***	0.179**	0.227***	0.271***	0.257***	0.409***
	[3.19]	[2.22]	[3.28]	[3.97]	[3.16]	[46127.84]
Number of Secured Creditors/100	-3.153**	-2.971***	-2.852***	-6.953**	0	-0.000***
	[2.42]	[2.62]	[2.72]	[2.18]	[.]	[67.49]
Number of Unsecured Creditors/100	-0.006	-0.003	-0.012	0.001	0.000***	0.000***
	[0.44]	[0.18]	[0.76]	[0.14]	[2.95]	[2.76]
Senior Debt Includes Banks (Y/N)	0.004	-0.008	-0.039	-0.258***	-0.334***	-0.288***
	[0.05]	[0.10]	[0.45]	[5.06]	[47.20]	[1595.72]
Junior Debt Includes Banks (Y/N)	-0.003	-0.005	-0.095	0.358***	0.367***	0.358***
	[0.03]	[0.04]	[0.84]	[8.57]	[9.70]	[120.59]
Debtor Expenses to Pre-Assets	-0.025	-0.245	-0.205	0.035	-0.000**	0.000**
	[0.23]	[1.14]	[1.02]	[0.18]	[2.10]	[1.97]
Unsecured Expenses to Pre-Assets	-1.167	-1.185	-0.803	-26.900***	0	0
	[0.90]	[1.17]	[0.90]	[3.58]	[.]	[.]
Equity Owned by Managers (%)	0.001	0.002**	0.001	0.002*	0.000**	0.000***
	[1.36]	[1.99]	[1.07]	[1.85]	[2.35]	[2.83]
Unsecured Creditors Committee (Y/N)	0.079	0.101	0.067	0.359***	0.318***	0.366***
	[0.85]	[1.19]	[0.80]	[9.73]	[134.45]	[103.04]
Arizona Dummy	0.295***	0.280***	0.289***			
	[3.29]	[3.28]	[3.47]			
Observations	93	93	89	69	69	66
Test (Asset Variables = 0) (p-value)	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Test(Specific Judge Effects) (p-value)				< 0.01	< 0.01	< 0.01
Individual Judge Fixed Effects	NO	NO	NO	YES	YES	YES
R-squared	0.36	0.39	0.44	0.7	1	1

Table 6. Probit Regressions - Probability of APR Violation

Probit Regressions of the probability of APR violations, on Remaining Assets, Unsecured Priority Claims, and Unsecured Priority Claims by Tax Authority. 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. Total Assets are the dollar value reported by the firm in the case filing. Secured (Unsecured) Debt Includes Banks is a dummy variable that takes value '1' whenever Secured (Unsecured) Creditors include a bank, financial institution, or mortgagor. Forced Petition (Yes/No) is a dummy variable that takes value '1' when the case is filed by creditors, zero otherwise. The % Equity Owned by Managers is as declared by the firm in the case filing. Total priority claim is the sum of all claims by federal, state, and municipal tax authorities. Federal tax authorities include Internal Revenue Services (IRS). State tax authorities include tax authorities at Arizona, California, Connecticut, Delaware, Hawaii, Illinois, Kentucky, Michigan, Nevada, North Carolina, New York, Pennsylvania, Tennessee, and Utah State. Municipal tax authorities include local tax authorities at Arizona, California, Connecticut, and New York state. Tests for Specific Judge Effects are based on a chi-square test of equality of all the coefficients of the judge dummies. *, **, *** denote statistical significance at the 10 percent, 5 percent, and 1 percent levels or better, respectively. Absolute value of Z-statistics is in brackets. The Table displays the marginal effects of the exogenous variables on the probability of APR violation.