IS SECURED DEBT USED TO REDISTRIBUTE VALUE FROM TORT CLAIMANTS IN BANKRUPTCY? AN EMPIRICAL ANALYSIS

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ABSTRACT

Many scholars question the priority enjoyed by secured debt in bankruptcy. They fear that secured debt will be used to inefficiently redistribute value away from preexisting unprotected creditors of a firm. These scholars advocate a host of legal innovations, such as "superpriority" for tort claimants with respect to other creditors, to mitigate the redistributional problem. Other scholars minimize the redistributional problem, however, and argue that priority for secured credit is efficient. To help resolve this debate, this Article examines the redistributional theory from an empirical perspective. In particular, it focuses on secured debt usage by publicly traded firms facing large tort liabilities ("high-tort" firms). In theory, secured debt should be attractive for high-tort firms because they have a large class of unsecured and uncovenanted creditors (tort claimants) exposed to redistribution in bankruptcy through the use of secured credit. The Article's empirical analysis contradicts the redistributional theory's prediction, however. High-tort firms have unusually low amounts of secured debt. Although this result is very difficult to explain under the redistributional theory, it can readily be explained according to other theories of secured debt. Several important policy implications for bankruptcy priorities follow from these findings.

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INTRODUCTION

Secured creditors enjoy priority status in bankruptcy with respect to other creditors.[1] Although the rule is well established, its desirability is the subject of decades of scholarly debate.[2] Some

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1. *See* 11 U.S.C. §§ 361–364 (2000 & Supp. V 2005). The priority of secured creditors is protected by the "adequate protection" clauses of these sections, which ensure that holders of collateral whose repossession has been stayed by bankruptcy should receive the full amount of their secured claim by the end of the bankruptcy process.

2. Professor Robert Scott's invaluable law review article dates the debate to 1979. Robert E. Scott, *The Truth About Secured Financing*, 82 CORNELL L. REV. 1436, 1437 n.1 (1997) [hereinafter Scott, *Truth About Secured Financing*]. For other articles developing the debate, see generally Barry E. Adler, *An Equity-Agency Solution to the Bankruptcy-Priority Puzzle*, 22 J. LEGAL STUD. 73 (1993); Douglas G. Baird, *The Importance of Priority*, 82 CORNELL L. REV. 1420 (1997); Lucian Arye Bebchuk & Jesse M. Fried, *The Uneasy Case for the Priority of Secured Claims in Bankruptcy*, 105 YALE L.J. 857 (1996) [hereinafter Bebchuk & Fried, *Uneasy*

academics assert that priority for secured debt promotes inefficient uses of secured debt as a means of redistributing value away from unsecured creditors toward those with collateral.[3] Late-arriving secured creditors can leapfrog earlier unsecured creditors, redistributing value to the benefit of the issuer and the secured creditor but to the detriment of unsecured creditors and, possibly, to social welfare (in the Kaldor-Hicks sense). Other scholars minimize the salience of the redistributive motive and claim that the priority of secured debt mitigates agency conflicts between borrowers and

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Case 1]; Lucian Arye Bebchuk & Jesse M. Fried, *The Uneasy Case for the Priority of Secured Claims in Bankruptcy: Further Thoughts and a Reply to Critics*, 82 CORNELL L. REV. 1279 (1997) [hereinafter Bebchuk & Fried, *Uneasy Case 2*]; F.H. Buckley, *The Bankruptcy Priority Puzzle*, 72 VA. L. REV. 1393 (1986); David Gray Carlson, *Secured Lending as a Zero-Sum Game*, 19 CARDOZO L. REV. 1635 (1998); Steven L. Harris & Charles W. Mooney, Jr., *Measuring the Social Costs and Benefits and Identifying the Victims of Subordinating Security Interests in Bankruptcy*, 82 CORNELL L. REV. 1349 (1997) [hereinafter Harris & Mooney, *Measuring the Social Costs*]; Steven L. Harris & Charles W. Mooney, Jr., *A Property-Based Theory of Security Interests: Taking Debtors' Choices Seriously*, 80 VA. L. REV. 2021 (1994) [hereinafter Harris & Mooney, *Property-Based Theory*]; John Hudson, *The Case Against Secured Lending*, 15 INT'L REV. L. & ECON. 47 (1995); Thomas H. Jackson & Anthony T. Kronman, *Secured Financing and Priorities Among Creditors*, 88 YALE L.J. 1143 (1979); Hideki Kanda & Saul Levmore, *Explaining Creditor Priorities*, 80 VA. L. REV. 2103 (1994); Saul Levmore, *Monitors and Freeriders in Commercial and Corporate Settings*, 92 YALE L.J. 49 (1982); Lynn M. LoPucki, *The Unsecured Creditor's Bargain*, 80 VA. L. REV. 1887 (1994); Ronald J. Mann, *Explaining the Pattern of Secured Credit*, 110 HARV. L. REV. 625 (1997); Randal C. Picker, *Security Interests, Misbehavior, and Common Pools*, 59 U. CHI. L. REV. 645 (1992); Steven L. Schwarcz, *The Easy Case for the Priority of Secured Claims in Bankruptcy*, 47 DUKE L.J. 425 (1997); Alan Schwartz, *The Continuing Puzzle of Secured Debt*, 37 VAND. L. REV. 1051 (1984) [hereinafter Schwartz, *The Continuing Puzzle*]; Alan Schwartz, *Priority Contracts and Priority in Bankruptcy*, 82 CORNELL L. REV. 1396 (1997) [hereinafter Schwartz, *Priority Contracts*]; Alan Schwartz, *Security Interests and Bankruptcy Priorities: A Review of Current Theories*, 10 J. LEGAL STUD. 1 (1981) [hereinafter Schwartz, *Bankruptcy Priorities*]; Alan Schwartz, *Taking the Analysis of Security Seriously*, 80 VA. L. REV. 2073, 2075–81 (1994) [hereinafter Schwartz, *Taking the Analysis of Security Seriously*]; Robert E. Scott, *A Relational Theory of Secured Financing*, 86 COLUM. L. REV. 901 (1986) [hereinafter Scott, *Relational Theory*]; Paul M. Shupack, *Solving the Puzzle of Secured Transactions*, 41 RUTGERS L. REV. 1067 (1989); George G. Triantis, *A Free-Cash-Flow Theory of Secured Debt and Creditor Priorities*, 80 VA. L. REV. 2155 (1994) [hereinafter Triantis, *A Free-Cash-Flow Theory*]; George G. Triantis, *Secured Debt Under Conditions of Imperfect Information*, 21 J. LEGAL STUD. 225 (1992); Elizabeth Warren, *Making Policy with Imperfect Information: The Article 9 Full Priority Debates*, 82 CORNELL L. REV. 1373 (1997); James J. White, *Efficiency Justifications for Personal Property Security*, 37 VAND. L. REV. 473 (1984).

3. *See, e.g.*, Bebchuk & Fried, *Uneasy Case 1*, *supra* note 2, at 859; Bebchuk & Fried, *Uneasy Case 2*, *supra* note 2, at 1314–15; Hudson, *supra* note 2, at 47; LoPucki, *supra* note 2, at 1891; Warren, *supra* note 2, at 1389–90.

lenders and facilitates efficient loans that could not occur if secured credit were not awarded priority.[4]

In a law review article, Professor Robert Scott summarized the debate as follows:

> To some extent, [the] leverage [afforded by secured debt] seems to be a singularly useful means of reducing conflicts of interest inherent in financial contracting relationships. These benefits are efficiency enhancing. To some degree, however, [the] leverage [afforded by secured debt] also appears to be a singularly useful means of enhancing the creditor's probability of repayment relative to other creditors. If, as seems plausible, some (or many) of these other creditors do not adjust to this reduction in bankruptcy share, there is a redistributional benefit to the creditor that the debtor does not fully internalize in assessing its total interest bill. This, then, would lead to some inefficient uses of security (as well as raise problems of distributional fairness). The question, in short, is simple: What are the relative values of these two offsetting effects? At this point we do not have a clue.[5]

This Article attempts to "get a clue" by testing the predictive value of the redistributional theory of secured debt. If redistribution constitutes a principal motive for firms' use of secured debt, then firms with greater opportunities for redistribution should issue more secured debt than other firms.[6] In particular, firms facing outsized, noninsurable tort liabilities should issue large amounts of secured debt. Tort claimants are the paradigmatic "nonadjusting" unsecured creditor.[7] Tort claimants cannot demand covenants to prevent leapfrogging by later secured creditors, nor can they demand an interest rate premium in lieu of covenant protection.[8] Unlike other

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4. *See, e.g.*, Carlson, *supra* note 2, at 1643–46; Harris & Mooney, *Measuring the Social Costs*, *supra* note 2, at 1350; Harris & Mooney, *Property-Based Theory*, *supra* note 2, at 2021–22; Kanda & Levmore, *supra* note 2, at 2111–14; Schwarcz, *supra* note 2, at 432–33; Schwartz, *Priority Contracts*, *supra* note 2, at 1397–98.

5. Scott, *Truth About Secured Financing*, *supra* note 2, at 1461.

6. *See* Schwartz, *Bankruptcy Priorities*, *supra* note 2, at 30 (stating that the "distributional explanation predicts that firms will issue secured debt only when a substantial number of their creditors are uninformed").

7. For example, tort claimants are listed first in the taxonomy of nonadjusting creditors described by Bebchuk and Fried. Bebchuk & Fried, *Uneasy Case 1*, *supra* note 2, at 882.

8. Late-arriving tort creditors—those who bring their successful suits in or just near bankruptcy—can obviously not obtain before their claim is brought to judgment or settled. Known tort creditors may sell their claims to other parties. The price at which these claims will be sold will be discounted to reflect the ability of the company to adulterate the value of the tort

creditors, they are exogenously unsecured (by virtue of the legal system). Firms facing large (and potentially terminal) liabilities should capitalize on this vulnerability by issuing large amounts of redistributive secured debt. The tortfeasing firm would pay lower interest rates on secured debt than on unsecured debt because a secured creditor will be paid in full before tort claimants receive any distribution should the tort liability ultimately force the company into bankruptcy.

Other rationales for secured debt make sharply contrasting predictions for the amount of secured debt likely to be issued by firms facing large tort liabilities ("high-tort firms"). Although such firms are at risk of bankruptcy, they are unlikely to experience the agency problems thought to characterize secured debt issuers under alternate theories of secured debt. For example, secured debt is unlikely to prevent a high-tort firm from "risk shifting" toward riskier projects because the firm's relatively stable income is not the source of the bankruptcy risk; instead it is the firm's tort liabilities that are the problem. Similarly, firms facing large tort liabilities, such as tobacco firms, are not the type of firms likely to need secured debt as a commitment device.[9] Large tobacco firms can credibly commit to avoid debt dilution through the use of covenants, making costly secured debt unattractive as a commitment device. Finally, high-tort firms may produce stable cash flows—limiting the attractiveness of the "financial slack" proffered by secured debt.[10]

Consequently, high-tort firms offer an ideal test of the predictive value of the redistributive theory of secured debt. If redistribution is a prime motive for secured debt, then such firms should issue large amounts of secured debt. If redistribution is relatively unimportant, then firms facing large tort liabilities should not issue unusual amounts of secured debt.

The "answer" to the question of whether or not high-tort firms issue large amounts of secured debt has normative implications for many of the debates raging around the priority of secured debt. First, many commentators, assuming that redistribution from tort claimants

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claim by issuing secured debt. Thus, the value of any tort claim that has not been paid in full is affected by the possibility of redistribution.

9. *See* Schwartz, *Priority Contracts*, *supra* note 2, at 1412 (suggesting that borrowers who cannot credibly commit to obey nondilution covenants may choose to issue secured debt).

10. *See* George G. Triantis, *Financial Slack Policy and the Laws of Secured Transactions*, 29 J. LEGAL STUD. 35, 35–37 (2000).

occurs, have argued for a change in legal regime toward one awarding superpriority to tort claimants with respect to other creditors.[11] If tort liabilities lead to redistributive secured debt issuance, then priority for secured creditors with respect to tort claimants is both unfair and inefficient. Secured creditor priority is unfair because tort claimants receive less than they are entitled to and cannot receive a higher award to compensate them for the risk that secured claimants will subordinate their claims in bankruptcy. It is inefficient because it dilutes the incentives for potential tortfeasing companies to take precautions against injuries and encourages such companies to use secured debt in situations in which, redistribution aside, they would prefer to issue unsecured debt. As a result, superpriority for tort claimants makes good sense—assuming that firms actually use secured debt to expropriate value from tort claimants.[12]

Similarly, other commentators have pointed to redistribution as a rationale for adjusting the priority of secured credit more generally. Professors Lucian Arye Bebchuk and Jesse M. Fried explain that tort claimants are not the only nonadjusting creditors. Other nonadjusting creditors include trade creditors and all prior unsecured creditors of a debtor who is considering borrowing on a secured basis.[13] Because secured credit redistributes value away from these third parties, secured debt may exceed the socially efficient amount.[14] To prevent

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11. *E.g.*, Barry E. Adler, *A World Without Debt*, 72 WASH. U. L.Q. 811, 826 (1994); Kathryn R. Heidt, *Cleaning Up Your Act: Efficiency Considerations in the Battle for the Debtor's Assets in Toxic Waste Bankruptcies*, 40 RUTGERS L. REV. 819, 851–63 (1988); Rebecca J. Huss, *Revamping Veil Piercing for All Limited Liability Entities: Forcing the Common Law Doctrine into the Statutory Age*, 70 U. CIN. L. REV. 95, 133 (2001) (arguing that tort claims should be given superpriority in bankruptcy because tort creditors have no ability to allocate risks or demand security); David W. Leebron, *Limited Liability, Tort Victims, and Creditors*, 91 COLUM. L. REV. 1565, 1643 (1991); LoPucki, *supra* note 2, at 1913; Note, *Switching Priorities: Elevating the Status of Tort Claims in Bankruptcy in Pursuit of Optimal Deterrence*, 116 HARV. L. REV. 2541, 2562 (2003). *See generally* Andrew Price, Note, *Tort Creditor Superpriority and Other Proposed Solutions to Corporate Limited Liability and the Problem of Externalities*, 2 GEO. MASON L. REV. 439 (1995).

12. Awarding superpriority to tort claimants may prove to be sound policy even if secured debt is not used to redistribute value away from secured creditors. The arguments presented here and elsewhere in favor of superpriority will not apply, however. Instead, scholars must formulate new arguments in favor of the change.

13. These nonadjusting creditors are different from tort creditors in that they may demand a contractual premium in exchange for accepting unsecured status. Once they sign their contracts, however, they instantly become nonadjusting.

14. This argument alone explains too much, as it implies that all credit should be secured. *See* Adler, *supra* note 2, at 74; Schwartz, *Bankruptcy Priorities*, *supra* note 2, at 30–33. As a

inefficient use of secured debt, Bebchuk and Fried, among others, advocate deviations from full priority for secured credit in favor of adjustable rules that enable sharing of assets between secured and unsecured creditors.[15] Again, however, if redistribution is not an empirically important phenomenon, then the impetus for this change disappears.

Finally, a finding that high-liability companies issue secured debt would provide evidence to support the claim that companies alter their capital structure to avoid tort liability.[16] If companies behave this way, then fears about the "death of liability" are more than idle worries and reforms to the tort system will be essential to prevent companies from avoiding liability through legal manipulations.[17] If companies do not use secured credit to avoid liability, however, then it is unlikely that companies will favor more radical rearrangements to capital structure when the benefits of avoiding liability are more nebulous than the case of secured credit. In total, a finding that companies facing large tort liabilities "load up" on secured debt would have important implications for the future direction of the law at the intersection of bankruptcy, corporate law, torts, and secured transactions.

Although the stakes are high, there has been little empirical investigation of the use of secured credit to redistribute value away from tort creditors. Indeed, one scholar decried the general "lack [of] any persuasive empirical data" in the secured debt literature.[18] Although several financial and legal scholars have investigated the use of secured lending, these papers have either ignored the redistributive motive or focused on the use of secured credit for

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result, Bebchuk and Fried include redistribution as one of several explanations for secured debt. Bebchuk & Fried, *Uneasy Case 1*, *supra* note 2, at 880–904.

15. Even if these nonadjusting creditors receive a premium for the risk of redistribution, secured debt will be used too frequently from an efficiency standpoint, with a resultant deadweight loss. *See* Bebchuk & Fried, *Uneasy Case 1*, *supra* note 2, at 880–904.

16. *See generally* Richard R.W. Brooks, *Liability and Organizational Choice*, 45 J.L. & ECON. 91 (2002) (finding that companies expanded their boundaries in response to the threat of higher liability from environmental damages); Al H. Ringleb & Steven N. Wiggins, *Liability and Large-Scale, Long-Term Hazards*, 98 J. POL. ECON. 574 (1990) (finding that exposure to significant liability leads to smaller, judgment-proof companies).

17. *See generally* Lynn M. LoPucki, *The Death of Liability*, 106 YALE L.J. 1, 4 (1996) (noting that if judgments of liability cannot be enforced, then "liability is merely symbolic").

18. Scott, *Truth About Secured Financing*, *supra* note 2, at 1437; s*ee also* Warren, *supra* note 2, at 1374 (noting that empirical questions have not been addressed in any detail).

redistribution against general unsecured creditors.[19] To this point, the use of secured credit to redistribute value away from tort claimants remains unexplored, in spite of the fact that redistribution from tort claimants is both interesting by itself and provides an ideal test case for the redistributive theory more generally.

This Article tests the hypothesis that firms facing large tort liabilities will redistribute value away from tort claimants using secured debt. As described, tort claimants are the paradigmatic example of the unsecured creditor in danger of expropriation through the use of secured debt. First, the Article examines several different methods of identifying companies at high risk for mass tort bankruptcies. Next, it collects and evaluates financial data for these companies and for other publicly traded companies from the Compustat database published by Standard & Poor's. Using several methods of statistical analysis and controlling for many other factors, the Article compares the amount of secured debt held by high-tort firms to the amount of secured debt held by otherwise similar companies that do not face large tort liabilities.

The results are striking. Companies facing large tort liabilities *do not* issue abnormal amounts of secured debt. Instead, high-tort firms appear to issue less secured debt than otherwise similar companies not facing bankruptcy. Moreover, these results are robust to many specifications, strongly suggesting that these findings are not the result of some quirk in the data, but rather are a genuine phenomenon. Individual examples comport with the statistical trends. For example, companies headed for mass tort bankruptcy as a result of asbestos liability have considerably less secured debt one year before declaring than the average firm within one year of a bankruptcy declaration.[20] Large cigarette manufacturers also are likely candidates to use secured debt to redistribute value away from tort creditors should tort liabilities bankrupt these firms. And yet

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19. Several empirical finance papers study the priority pattern of lending in light of economic theories of corporate finance. *See, e.g.*, Michael J. Barclay & Clifford W. Smith, Jr., *The Priority Structure of Corporate Liabilities*, 50 J. FIN. 899, 899 (1995); Allen N. Berger & Gregory F. Udell, *Collateral, Loan Quality, and Bank Risk*, 25 J. MONETARY ECON. 21, 21 (1990). These papers do not consider the role of tort liability or the priority status of tort creditors in their consideration of loan priorities, however. In an important paper, Professor Ronald Mann interviewed individuals involved in secured lending and examined their attitudes with respect to redistribution. Mann, *supra* note 2, at 630. Mann, however, also does not examine the implications of tort claimants for the desirability of secured lending.

20. *See infra* Part IV.

Phillip Morris, the nation's largest tobacco company, had no secured debt in the years 2000 and 2001.

The results contradict the redistributional theory for the use of secured debt. If redistribution does not occur against nonadjusting tort claimants, it is unlikely to occur in other contexts. The results, however, are consistent with the "reduction of agency costs" explanation for secured debt. Tobacco companies and companies with large asbestos liabilities, for example, are not like other firms in financial distress. They are successful companies in relatively mature industries. Firms in industries such as these encounter relatively small agency costs relative to other firms. As a result, the agency-mitigating features of secured debt are relatively unattractive to these firms. If firms issue secured debt primarily to mitigate agency costs (and not for redistribution), then these firms should not have large amounts of secured debt—a prediction confirmed by the findings presented in this Article.

Indeed, firms with large tort liabilities may be particularly averse to secured debt. A number of observers have noted that secured creditors have a tendency to prefer liquidation over reorganization in bankruptcy.[21] Mass tort bankruptcy candidates are more likely to be viable firms than other firms in financial distress—their bankruptcy is not the result of a failing business model, but rather is caused by tort. As a result, reorganization will tend to be more attractive for these firms than others. Knowing this, a firm at risk of mass tort bankruptcy may prefer to limit the amount of secured debt to facilitate a successful reorganization in bankruptcy.

Several normative recommendations follow from these results. First, superpriority for tort claimants in bankruptcy solves a problem that is not empirically significant. If firms are not expropriating value from tort claimants under the present priority scheme, then the inefficiencies and inequities decried by advocates for superpriority are exaggerated. Although there are still justifications for superpriority, the benefits of the change must be weighed against the costs of a change in legal regime. Second, as Professor Scott notes, "if

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21. *See, e.g.*, J. Bradley Johnston, *The Bankruptcy Bargain*, 65 AM. BANKR. L.J. 213, 246 (1991). For a judicial recognition of this tendency of secured creditors, see *In re Bermec Corp.*, 445 F.2d 367, 369 (2d Cir. 1971) ("We are conscious of the deep concern of the manufacturing secured creditors lest their security depreciate beyond adequate salvage, but we must balance that with the Congressional mandate to encourage attempts at corporate reorganization where there is a reasonable possibility of success.").

nonadjusting creditors are statistically insignificant . . . then the redistributional claim largely fails and the observed preference of many market actors for secured credit is strong evidence of the dominating effects of its cost-reducing properties."[22] Therefore, proposals to change the prevailing regime of full priority for secured claims on behalf of nonadjusting creditors are empirically unsupported. Finally, these results contradict those scholars advocating changes in liability regimes because of fears that firms adjust their capital structure to minimize liability.[23]

   This Article proceeds as follows: Part I examines the secured debt debate and provides a theoretical framework for the empirical results presented. Part II describes the data collection process and examines means of identifying high-tort-risk companies. Part III presents statistical analysis of the relation between tort risk and secured debt usage. Part IV evaluates and interprets the results in the context of the theoretical framework presented in Part I.

I. EXPLAINING THE USE OF SECURED DEBT AND EVALUATING SECURED DEBT'S EFFICIENCY

   Firms face a choice between issuing secured and unsecured debt. Unsurprisingly, secured debt has both benefits and costs relative to unsecured debt. Secured debt's priority status in bankruptcy plays an important role in defining these benefits and costs.[24] The debate described in the Introduction and the empirical analysis presented in Part III examine the relative size and importance of these costs and benefits. To provide a framework for the empirical examination, this Part describes the theoretical costs and benefits of secured debt and examines how different perceptions of these costs and benefits leads directly to varying normative conclusions about the desirability of secured debt's priority.

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   22.   Scott, *Truth About Secured Financing*, *supra* note 2, at 1462.

   23.   Note that many of these conclusions are cautionary in nature. The empirical results serve more to contradict one theory of secured debt—the redistributional theory—than to support another theory in particular.

   24.   These benefits and costs must vary from firm to firm because some firms issue no secured debt, others issue only secured debt, and a third category issues both secured and unsecured types. *See* Adler, *supra* note 2, at 74 (describing the puzzle that secured credit is "valuable but is not ubiquitous"). Professor Adler's observation relies heavily on earlier work by Professor Alan Schwartz. Schwartz, *Bankruptcy Priorities*, *supra* note 2, at 24–25. Therefore any theory that predicts that secured debt should be either nonexistent or ubiquitous fails the armchair verification test.

A. The Costs of Secured Debt

Scholars have identified several costs associated with secured debt with respect to other forms of debt. Professors Bebchuk and Fried identify three primary categories of costs: "(1) 'contracting costs'—including the cost of negotiating and perfecting the security interest; (2) 'enforcement costs'—the costs of policing the collateral; and, perhaps most importantly, (3) 'opportunity costs'—the costs created when the security interest prevents the borrower from pursuing efficient activities."[25] Although the secured lender may directly bear many of these costs, the debtor must pay a higher interest rate to compensate the lender for these expenses.

Professor Ronald Mann's investigation suggests that enforcement costs are considerably higher for secured loans than for unsecured loans.[26] Secured lenders must monitor their securities to ensure that their rights are protected. This monitoring is costly.[27]

The largest cost associated with secured debt relative to unsecured is the prevention of efficient investment activities by the debtor. A secured lender may prevent a debtor from using its collateral in a productive investment if it perceives that the investment may reduce the lender's recovery (even if the investment is profitable on average). The lender's goal is to maximize its own recovery, and not the total value of the firm. Renegotiation of a secured loan may ameliorate this problem, but the renegotiation is itself costly. As one borrower quoted by Professor Mann stated about a secured loan, "You just don't have the same flexibility of dealing with your properties as if you owned them unencumbered."[28] This loss of flexibility is costly for the secured debt issuer.

Secured credit may also increase the cost of reorganization in bankruptcy. Because secured creditors have priority, they tend to prefer low-risk bankruptcy strategies such as liquidation, even if liquidation destroys value.[29] Furthermore, secured debt may increase

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25. Bebchuk & Fried, *Uneasy Case 1*, *supra* note 2, at 877.

26. *See* Mann, *supra* note 2, at 663 (noting that information costs "strongly encourage unsecured credit in transactions involving large borrowers").

27. *See id.* at 663–64. Mann notes that these costs will only be incurred because there is a benefit in increased repayment probabilities. *Id.* at 663. Part I.B.2 examines these benefits.

28. *See id.* at 665 (quoting Telephone Interview, Joseph W. Robertson, Jr., Chief Financial Officer, Weingarten Realty Investors (July 11, 1995)).

29. *See* Arturo Bris, Ivo Welch & Ning Zhu, *The Costs of Bankruptcy: Chapter 7 Liquidation vs. Chapter 11 Reorganization* 4 (Int'l Center for Fin. at Yale Sch. of Mgmt.,

free-rider problems. The firm's bundle of assets may be worth more together than apart. Each secured creditor may attempt to extract this value from other creditors by attempting to hinder the attempted reorganization. Because the secured creditor with priority loses little if negotiations fail and end in liquidation and has a right that is clearly associated with a particular asset, the secured creditor is uniquely placed to "hold up" the negotiations and demand excess value.[30] As a result, large amounts of secured debt may obstruct efficient bankruptcy reorganizations—an important additional cost created by secured as opposed to unsecured debt.

Finally, the availability of security with a priority claim in bankruptcy raises a firm's cost of lending more generally. Unsecured creditors will demand costly covenants restricting later secured debt or an interest rate premium to protect themselves against the risk that the issuance of later secured debt may dilute the value of their claims.[31] In both cases, a firm must pay a higher price for unsecured credit.

B.   The Benefits of Secured Debt

Given the costs described in Section A, secured debt must offer offsetting benefits if debtors are ever to issue security. Unfortunately, there is less consensus about the benefits of secured debt to firms than there is regarding the costs. This Section details some of the many benefits proposed by scholars as explanations for the existence of secured debt.

1.   *Controlling Monitoring and Agency Costs*.   Most attempts to define the benefits of secured debt "focus on the ways in which secured credit can better control agency costs within the firm by reducing conflicts of interest between the debtor's managers (representing the residual equity claimants) and the firm's debt holders."[32] Better control of agency costs reduces the interest rate a

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Research Paper Series, Working Paper No. 04-13, 2004), *available at* http://ssrn.com/abstract=523562 (stating that when banks are secured creditors, they prefer firms to be liquidated and do not favor reorganizations).

30.   *See* Patrick Bolton & David S. Scharfstein, *Optimal Debt Structure and the Number of Creditors*, 104 J. POL. ECON. 1, 2 (1996).

31.   This is part of what Professor Alan Schwartz has termed the "puzzle of secured debt." *See* Schwartz, *Taking the Analysis of Security Seriously*, *supra* note 2, at 2079–80.

32.   *See* Scott, *Truth About Secured Financing*, *supra* note 2, at 1448.

firm must pay; the more confident the lender is that the firm will not behave opportunistically, the less of a premium the lender will demand.[33]

Secured lending appears to offer a partial solution to the "overinvestment" or risk-alteration problem.[34] Security enables a lender to exact harsh penalties on a debtor in the event of default. For example, the secured lender may foreclose on potentially critical assets. Thus, if a borrower attempts to engage in covenant-violating risk alteration, a secured lender has considerably more power than an unsecured lender to prevent opportunistic risk alteration.[35] Because risk alteration may be inefficient, the leverage gained by the secured creditor may enable socially preferred outcomes.

Secured lending may also mitigate the "underinvestment" problem.[36] The underinvestment problem occurs when a firm chooses to reduce its investment in a project because it must share the benefits of the project with a creditor/joint venturer. Instead, the firm may prefer to invest in a less promising project in which the firm retains all the profits. Security enables creditors/joint venturers to prevent underinvestment. If a firm violates a covenant associated with a lending contract in a way that will reduce the creditor's return, then the secured creditor can threaten to foreclose on the collateral. This

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33. This discussion focuses on secured debt as a means of reducing risk alteration. Other agency costs related to theories of secured debt focus on secured debt's ability to decrease monitoring costs. *See* DOUGLAS G. BAIRD & THOMAS H. JACKSON, CASES, PROBLEMS, AND MATERIALS ON SECURITY INTERESTS IN PERSONAL PROPERTY 324–28 (1987); Buckley, *supra* note 2, at 1396; Jackson & Kronman, *supra* note 2, at 1150–51; Levmore, *supra* note 2, at 49.

34. For analyses of this issue, see Elazar Berkovitch & E. Han Kim, *Financial Contracting and Leverage Induced Over- and Under-Investment Incentives*, 45 J. FIN. 765, 765 (1994); Bolton & Scharfstein, *supra* note 30, at 2; Scott, *Relational Theory*, *supra* note 2, at 901; Charles W. Smith & Jerold S. Warner, *On Financial Contracting: An Analysis of Bond Covenants*, 7 J. FIN. ECON. 117, 117 (1979). Another prominent explanation of secured debt (and priority rules more generally) on the basis of agency costs and primarily risk alteration-controlling properties is Kanda & Levmore, *supra* note 2, at 2106.

35. Many scholars list specific ways in which the security can reduce risk alteration. *See, e.g.*, Carlson, *supra* note 2, at 1637; Rene M. Stulz & Herb Johnson, *An Analysis of Secured Debt*, 14 J. FIN. ECON. 501, 502 (1985); Triantis, *A Free-Cash-Flow Theory*, *supra* note 2, at 2157. For a list of means of risk alteration, see Bebchuk & Fried, *Uneasy Case 1*, *supra* note 2, at 876.

36. Professor Stewart Myers offered the original explication of the underinvestment problem. *See generally* Stewart C. Myers, *Determinants of Corporate Borrowing*, 5 J. FIN. ECON. 147, 147 (1977) (examining the "gap in modern finance theory on the issue of corporate debt policy"). The underinvestment problem was related to secured debt by Berkovitch & Kim, *supra* note 34, at 765–66, and Smith & Warner, *supra* note 34, at 119.

harsh penalty deters the firm from inefficiently starving the joint venture of funds.

Similarly, secured lending may reduce the number of "opportunistic" defaults.[37] An opportunistic debtor will declare bankruptcy when there is no shortage of liquidity if it believes that a bankruptcy reorganization will improve its credit terms. In response, a lender must demand potentially excessive interest rate premiums to compensate for the strategic default risk. Secured debt may offer another solution. Because secured debt makes bankruptcy reorganization more costly and uncertain,[38] it will deter opportunistic bankruptcy declarations. When opportunistic bankruptcies are a large risk, the secured debt solution may be more attractive. When opportunistic bankruptcies are unlikely, however, secured debt will be less attractive because it will raise the cost of potentially efficient bankruptcy reorganizations.[39]

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37. This discussion borrows from the work of Bolton & Scharfstein, *supra* note 30, at 2.

38. *See supra* note 29–30 and accompanying text.

39. In their important article, Professors Bebchuk and Fried argue that these benefits of secured debt are independent of secured debt's priority. Instead, they argue that the benefits arise from "the special rights accorded to secured creditors outside of bankruptcy." Bebchuk & Fried, *Uneasy Case 1*, *supra* note 2, at 875. Indeed, the unique characteristics of secured debt, such as the right to foreclose on an asset in response to default, are related to state law rights of foreclosure and not to the priority of security in bankruptcy. Bebchuk and Fried's claim that the agency cost–reduction abilities of secured debt is independent of bankruptcy priority is incomplete, however. Bebchuk and Fried correctly note that foreclosure is a state law right that enables a creditor to effectively deter opportunistic behavior (such as risk alteration) by the debtor. *Id.* They fail to discern, however, that the effectiveness of the foreclosure deterrent depends critically on the priority that secured credit receives in bankruptcy. The argument runs as follows: Suppose that secured creditors do not enjoy priority in bankruptcy. Suppose further that a debtor attempts to violate the terms of a secured debt contract and engages in opportunistic risk-altering behavior. The secured creditor threatens to foreclose, seeking to dissuade the debtor from engaging in risk alteration. In turn, the debtor threatens to declare bankruptcy. If the secured debtor does not enjoy priority in bankruptcy, then the debtor's counterthreat is effective. The secured creditor will be reluctant to foreclose because it risks losing value while sharing priority with other creditors. The state law right of foreclosure is toothless if secured creditors do not enjoy priority in bankruptcy. When the secured creditors enjoy priority, however, the debtor's bankruptcy threat does not intimidate the secured creditor, which can be confident that it will recover its loan (along with interest) because it enjoys priority in bankruptcy. Indeed, secured lenders are more likely to place a creditor in bankruptcy than other lenders, suggesting that they are far less afraid of bankruptcy, and therefore better able to exercise leverage, than other creditors.

2. *Redistribution—Priority Related*.   Redistribution offers another explanation for the use of secured debt.[40] The redistributional capacities of secured debt operate as follows: First, suppose that a firm has nonadjusting creditors. Nonadjusting creditors are creditors who do not adjust the interest rate charged to the firm in response to events that alter the expected recovery of the loan should bankruptcy occur. Next, suppose that the firm needs to issue debt and must choose between secured and unsecured debt. If the firm issues secured debt, then the new creditor will demand a lower interest rate as compared with unsecured debt because the new creditor will be more confident of recovery in bankruptcy due to secured debt's priority. Secured debt reduces the value of nonadjusting creditors' claims, however. Because the new creditor's claims are secured, the nonadjusting creditors will only recover in bankruptcy after the secured creditors are paid in full. Thus, more secured credit means lower recoveries for other creditors. In response to this effect, preexisting creditors should charge a higher interest rate to compensate for the increased risk of nonrecovery in bankruptcy or demand covenants to limit the probability of redistribution.[41] For a variety of reasons, nonadjusting creditors do not do so.[42] As a result, the firm can issue new secured debt and obtain a lower interest rate, thereby "redistributing" value away from the nonadjusting creditors whose claims have been diluted through the use of security.[43]

Secured debt's redistributional benefits to a firm stem from the existence of nonadjusting creditors. Scholars have identified several groups of nonadjusting creditors.[44] These include (1) private involuntary creditors such as tort claimants, (2) government tax and regulatory claims, (3) voluntary creditors with small claims, and (4) prior voluntary creditors.[45] The third and fourth classes of nonadjusting creditors may adjust their interest rate to reflect

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40. *See, e.g.*, Schwartz, *Bankruptcy Priorities*, *supra* note 2, at 30–33; James H. Scott, *Bankruptcy, Secured Debt, and Optimal Capital Structure*, 32 J. FIN. 1, 1 (1977); James H. Scott, *Bankruptcy, Secured Debt, and Optimal Capital Structure: Reply*, 34 J. FIN. 253, 253 (1979). *See generally* Bebchuk & Fried, *Uneasy Case 1*, *supra* note 2 (presenting a new and more general analysis of the redistributional theory).

41. *See, e.g.*, Christopher W. Frost, *Asset Securitization and Corporate Risk Allocation*, 72 TUL. L. REV. 101, 125–26 (1997); Schwartz, *supra* note 2, at 7–8.

42. *See* Bebchuk & Fried, *Uneasy Case 1*, *supra* note 2, at 885–86.

43. *See id.* at 864–66.

44. *See id.* at 882–91.

45. *Id.*

nonadjustment. The first two classes cannot. Of these classes, the most frequently noted and commented upon are tort claimants.[46]

Tort claimants become creditors when firms do not carry enough insurance to cover all tort claims. Insurance may not cover all tort claims because insurers insist on a coverage limit or because firms have an incentive to underinsure.[47] Whatever the cause, when firms are underinsured, tort victims of the firm must recover from the firm rather than the firm's insurer. The size of the tort claimant's claim is fixed by the size of damages.[48] The tort claimant is therefore the paradigmatic nonadjusting creditor—the tort claimant cannot claim additional compensation if a later secured loan reduces the expected tort recovery in bankruptcy. Moreover, tort claimants, as involuntary creditors, enjoy no contractual protections against redistribution such as covenants. As a result, tort claimants are highly exposed to redistribution. A firm with many tort creditors should pay a considerably lower interest rate for secured debt, which enjoys priority over the tort creditors, as opposed to unsecured debt, which must share firm assets pro rata with the tort claimants.[49] The redistributional theory suggests that firms should therefore issue secured debt. Tort claimants will suffer from the secured debt, as the tort claimant's bankruptcy share is reduced without any countervailing increase in payoffs.[50]

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46. *See, e.g.*, *id.* at 882 (presenting tort claimants as the first type of creditor in their taxonomy of nonadjusting creditors); LoPucki, *supra* note 2, at 1898–99; Scott, *Bankruptcy, Secured Debt, and Optimal Capital Structure*, *supra* note 40 at 2–3; Shupack, *supra* note 2, at 1094–95.

47. *See* Bebchuk & Fried, *Uneasy Case 1*, *supra* note 2, at 882; Henry Hansmann & Reinier Kraakman, *Toward Unlimited Shareholder Liability for Corporate Torts*, 100 YALE L.J. 1879, 1889 (1991).

48. This is especially true for late-arriving tort claimants whose claims arise in or near bankruptcy, precluding the possibility of compensation for nonadjustment through higher interest rates.

49. Because fraudulent conveyance doctrines in bankruptcy only apply to transactions made within two years of filing and exempt transactions for which "reasonably equivalent" value was paid, "fraudulent conveyance" offers limited protection for tort claimants against redistributional secured debt. *See* 11 U.S.C. § 548(a) (2000 & Supp. V 2005).

50. The other classes of nonadjusting creditors may suffer from similar forms of redistribution. These nonadjusting creditors may demand interest rate premiums to compensate for potential redistribution or they may demand contractual protections instead. Although there may still be some inefficiencies associated with redistributional secured debt in these contexts, they are much less problematic than the case of involuntary creditors. Redistribution does not necessarily imply that a firm's incentives to take precautions against torts will be reduced. For a discussion, see Yeon-Koo Che & Kathryn E. Spier, *Strategic Judgment Proofing* 14–15 (The

C. The Normative Implications of Theories of Secured Debt for Bankruptcy Priorities

Whether or not secured debt should enjoy priority in bankruptcy depends upon the relative predictive accuracy of the two theories of secured debt presented in Section B. If the agency cost reduction theory is primarily correct in describing secured debt usage, then secured debt should receive priority over other types of debt. Priority increases the leverage the secured lender enjoys over the creditor. In turn, this leverage enables the secured lender to reduce potentially inefficient opportunistic behavior by the debtor. Any reduction in priority for secured credit may reduce leverage and inhibit the usefulness of secured debt as an agency cost–reducing tool.

If one finds that firms issue secured debt for redistributional reasons, by contrast, then priority for secured debt is less desirable.[51] Redistribution leads to inefficiencies. Redistribution involves the transfer of value from nonadjusting creditors to newly arriving secured creditors. No value is created. Instead, value is shuffled. If secured debt costs more to issue than unsecured debt (for example, if transactions costs are higher in the case of secured loans), then secured loans would consume valuable resources for a benefit, redistribution, that transfers but does not create wealth—an inefficient outcome. Secured debt issued for redistributional reasons also may lead to other inefficiencies. In the tort context, for example, redistribution may lead to excessively low levels of precaution.

Suppose a firm with no insurance commits a large tort that threatens to force the firm into bankruptcy. If the firm cannot issue debt with priority over tort claimants, then it will be forced to borrow at high rates; contract creditors will know that they will be forced to share pro rata with the large group of tort creditors in the event of bankruptcy and will demand to be compensated accordingly. In this situation, the firm will take precautions to avoid mass torts, which raise the firm's cost of credit.

Now suppose, however, that secured debt enjoys priority over tort claimants and that firms issue secured debt for redistributional reasons. In this scenario, the firm's incentives for precaution are

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Center for the Study of Indus. Org. at Northwestern U., Working Paper No. 0081, 2006), *available at* http://www.wcas.northwestern.edu/csio/Papers/2006/CSIO-WP-0081.pdf.

51. Of course, elements of both theories may be correct. The scholarly "debate" concerns the relative importance of the explanations in determining the "real-world" usage of secured debt.

greatly reduced. If a tort occurred, the firm's cost of credit would not be greatly altered. Instead, the firm would issue secured debt. Contract creditors would not demand high interest rate premiums because the secured debt enjoys priority in bankruptcy and will be fully repaid before the large class of tort claimants receives anything. Thus, secured debt enables a firm to avoid the full costs of large torts.[52] In response, a firm will have less of an incentive to take precautions to avoid the large tort.

If redistribution is the primary motive for secured debt issuance, then priority for secured debt also leads to inequitable distributions. Whereas unsecured contract creditors are voluntarily unsecured and may receive compensation for their lack of security in the form of higher interest rates, tort claimants can not choose their security level. They are unwillingly exposed to redistribution. Furthermore, tort victims may have extraordinary liquidity needs that go unmet as a result of secured debt's priority status.[53] In response to these efficiency and equity concerns, many adherents of the redistributional theory have advocated a reduction in secured debt's priority. Arguments to grant tort claimants priority over other creditors have a long history.[54] One commentator describes the argument as follows:

> One effective way of deterring insolvency and encouraging optimal precaution levels would be to alter the priority scheme by giving tort creditors "superpriority" status. Under this system of superpriority, tort creditors would be paid before all priority creditors, secured creditors, and unsecured creditors. Since secured creditors would not be guaranteed payment at the head of the line in this regime, they would bear a portion of the risk of insolvency. Secured creditors would be forced to price risk into credit and would in turn force firms to internalize this risk through credit prices that correspond to precaution levels. . . . To force firms to include the full cost of accidents in business decisions, it is crucial to prioritize tort claims above all other priority claimants, even secured creditors. If tort debt were given priority, all creditors would have an incentive to monitor business risk-taking. Because they are often less diffuse and

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52. In this context, secured debt also diminishes a firm's incentives to purchase insurance. If a firm can use secured debt to avoid making payments to tort creditors and thereby diminish the amount ceded by equity claimants to tort claimants, there is less of a need to purchase insurance that covers the firm's obligations to tort claimants.

53. *See* Yair Listokin & Kenneth Ayotte, *Protecting Future Claimants in Mass Tort Bankruptcies*, 98 Nw. U. L. Rev. 1435, 1438 (2004).

54. *See supra* note 11 and accompanying text.

more savvy than shareholders, creditors are in the best position to monitor levels of risky activity.[55]

These arguments apply only to noninsured tort liabilities. When tort liabilities are insured, the insurer has an incentive to price the insurance appropriately and encourage the firm to take appropriate precautions. Furthermore, tort claimants do not suffer from priority for secured debt when firms are insured because the tort claimants receive compensation from the insurance company and not the tortfeasing firm.

Superpriority for tort claimants is not the only proposed bankruptcy priority reform. Noting that tort claimants are not the only nonadjusting creditors, Professors Bebchuk and Fried advocate a "partial priority" rule for secured debt.[56] They believe that partial priority would reduce the amount of secured debt issued for inefficient redistributional reasons.[57] Furthermore, Professor Lynn LoPucki points to redistributional secured debt as an example of a growing trend leading toward the "death" of tort liability.[58] Concluding that tort claimant priority alone is insufficient in the face of this trend, Professor LoPucki considers unlimited shareholder liability and consensual creditor liability as potential solutions, but concludes that even these radical steps are potentially inadequate.[59]

The debate over the primary reasons for secured debt's usage involves high stakes. If secured debt is primarily used to reduce agency costs, then it is efficient for secured debt to enjoy priority over other debt. If secured debt's primary use is to redistribute money from one class of creditors to another, however, then a host of changes to the bankruptcy priority rules are warranted.

II. EMPIRICAL ANALYSIS: SECURED DEBT AND TORT LIABILITY

The discussion in Part I described the importance of distinguishing between the agency-cost theory and the redistributional theory of secured debt. This Part presents an empirical framework for distinguishing between the two theories by

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55. *See* Note, *supra* note 11, at 2562.

56. Bebchuk & Fried, *Uneasy Case 1*, *supra* note 2, at 866. Partial priority rules treat a portion of all secured debt as unsecured debt.

57. *Id.*

58. LoPucki, *supra* note 17, at 14–23.

59. *Id.* at 63.

focusing on secured debt usage in response to noninsured tort liabilities.

A. *Theories of Secured Debt and Predictions Regarding Secured Debt Usage and Tort Liability*

The redistributional theory predicts that firms with large, noninsured tort liabilities should have large amounts of secured debt,[60] and recall that tort claimants are uniquely exposed to redistribution.[61] They do not enjoy contractual protections such as covenants, nor do they voluntarily choose to forego such protection in exchange for greater compensation. As a result, firms faced with large tort liabilities have particularly strong motives to engage in redistribution. The spread in interest rates between secured and unsecured debt, and thus the payoff for engaging in redistribution through secured debt, should be particularly high for "high-tort" firms. ("High-tort" firms are those with large actual or potential tort liabilities, such as asbestos companies, tobacco companies, or nuclear power plant operators.) Moreover, high-tort firms will not have to engage in the hassle of renegotiating covenants with the large class of unsecured tort claimants. Thus, redistribution is at its easiest and most compelling for high-tort firms. If redistributional motives ever drive secured debt issuance, then firms facing noninsurable tort liabilities should engage in large amounts of secured borrowing relative to otherwise similar firms without large tort liabilities.

By contrast, the agency-cost theories of secured debt do not predict that high-tort firms should issue large amounts of secured debt. Firms facing large tort liabilities are no more susceptible to "risk alteration" or other agency costs than other firms. Indeed, high-tort firms may be less susceptible to these agency costs than an average firms. High-tort firms' risks stem primarily from partially exogenous, nonperformance-related factors such as court decisions.[62] Other firms, by contrast, encounter more significant performance-related risk that can be adjusted through risk shifting and controlled with secured debt. Furthermore, many of the high-tort firms identified in this Article are in mature industries with stable cash flows, making them

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60. *See supra* Part I.B.2.

61. *See supra* Part I.

62. Indeed, the tort risks often derive from decisions made by previous executives (such as in the case of asbestos and tobacco) and therefore have little if anything to do with the firm's contemporaneous operating performance.

poor candidates for secured debt given secured debt's undeniably high costs.[63]

Thus, high-tort firms offer a compelling empirical test of the redistributional theory. If high-tort firms do not have large amounts of secured debt, it is unlikely that they use secured debt for large-scale redistribution.

B. Identifying Firms with Large Tort Liabilities

This Article adopts several techniques for identifying firms with large, noninsurable tort liabilities. First, this study focuses on firms in industries with well-known, large mass tort liabilities. Firms with large asbestos liabilities are the most prominent example. To identify these firms, this Article draws upon the research of Professor Michelle White, who compiled a list of companies that declared bankruptcy as a result of asbestos liability.[64] Note that many of these firms are not asbestos manufacturers; most manufacturers declared bankruptcy well before the time period examined in this sample.[65] Instead, the firms come from a number of industries and often became exposed to asbestos liability by acquiring firms with some early and little-noted connection to the asbestos industry.[66] These firms are identified through the use of a dummy variable that equals one if the firm is present on Professor White's list and zero otherwise.

Tobacco firms are another widely publicized group of firms with potentially large mass tort liabilities. Since the 1990s, tobacco companies have become the target of suits from numerous sources, including smokers, secondhand smokers, and representatives of states

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63. Although firms in mature industries are unlikely to default on their loans, they may be likely to waste their free cash flow on unproductive projects. As a result, high debt loads for mature companies may be efficient ways to constrain management from wasting the free cash flows. *See* Michael C. Jensen, *Agency Costs Of Free Cash Flow, Corporate Finance, and Takeovers*, 76 AM. ECON. REV. 323, 323 (1986). Because risk alteration is not an important concern for such companies, however, the need for secured debt, as opposed to other forms of debt, is limited.

64. *See* Michelle J. White, *Why the Asbestos Genie Won't Stay in the Bankruptcy Bottle*, 70 U. CIN. L. REV. 1319, 1320 (2003).

65. For example, the Manville Corporation, the largest asbestos manufacturer, declared bankruptcy in 1982. *In re* Johns-Manville Corp., 36 B.R. 743 (Bankr. S.D.N.Y. 1984).

66. *See, e.g.*, Note, *Successor Liability, Mass Tort, and Mandatory-Litigation Class Action*, 118 HARV. L. REV. 2357, 2374–77 (2005) (discussing GAF Corporation's difficulties as a result of asbestos liability assumed by acquiring another company that had made asbestos years earlier).

and the federal government.[67] Although these suits have yet to force these firms into bankruptcy, there is a high mass tort bankruptcy risk for tobacco firms. State tobacco bond interest rates provide evidence of this risk.[68] Adverse tort verdicts have made states reluctant to issue tobacco bonds securitizing settlement payments from tobacco companies.[69] Because investors fear that tort liability will force tobacco companies into bankruptcy, tobacco bonds carry a high interest rate premium.

Tort risk is a salient characteristic of both tobacco and asbestos firms, and it should surprise no one if these firms adopt capital structures with this risk in mind. To broaden the sample of high-tort firms beyond these two industries, however, a more rigorous method of identifying high-tort industries is necessary. This study uses the Westlaw databases ALLSTATES and ALLFEDS to assist in this task. The procedure for identifying high-tort-risk industries operates as follows: First, the official census bureau titles of industries—known as the Standard Industrial Classification (SIC) titles—were obtained from the U.S. Census Bureau.[70] Next, the key phrase[71] for each three-digit SIC industry group code title was typed into Westlaw along with the following command:

"[Industry Name]" /s "products liability"

The resulting hits were recorded. This search gives an indication of the number of times an industry is associated with products liability risk—the cause of almost all the mass tort bankruptcies heretofore.

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67.   For a discussion of many of these suits, see David Hechler, *Tobacco Takes It on the Chin*, NAT'L L.J., Feb. 19, 2003, http://www.law.com/jsp/article.jsp?id=1043457953024.

68.   Tobacco companies have large obligations to states stemming from a large settlement of a 1998 class action lawsuit against tobacco companies by many states' attorneys general. To plug large deficits, some states have securitized their receipts from tobacco companies. These bonds are called "state tobacco bonds." *See* Al Baker & Jonathan Fuerbringer, *Shift in Bonds Has States Rethinking Tobacco Plans*, N.Y. TIMES, Apr. 10, 2003, at A18.

69.   *Id.*

70.   The Census Bureau gives each industry an official SIC title as well as an official three-digit SIC Code. For a list of these industrial titles and codes, see SIC Division Structure, http://listsareus.com/business-sic-codes.htm (last visited Dec. 7, 2007).

71.   Many of the SIC titles contain extraneous words. For example, the paper industry is not termed the "Paper" industry but rather the "Paper and Allied Products" industry. For this study, the key term of each SIC title was used. For example, searches were conducted using the word "Paper" and not "Paper and Allied Products." A list of these phrases is available from the author upon request.

To control for the fact that some industries' names are more common than others, I conducted another "control" search using the command

"[Industry Name]" /s "breach of contract"

and I recorded the resulting hits. Industries that generated a lot of hits for the first search simply because they had a common name should also have large number of hits on the control search. By contrast, industries with genuinely high products liability risk should have many more hits on the first search than on the second. The industries with large numbers of hits for search 1 but not for search 2 were identified as high-tort industries with a dummy variable equal to one.[72]

Although this procedure is imperfect, it provides a rough-and-ready objective means of identifying industries with high tort risk. Furthermore, the results from this procedure are intuitively reasonable. The two highest scoring industries according to this method were the tobacco and asbestos industries. Other industries identified as high tort using the "Westlaw" method include pharmaceutical firms, surgical and medical equipment makers, paint manufacturers, pesticide makers, tire manufacturers, small arms manufacturers, household appliance manufacturers, and toy and sporting goods equipment makers. Note that the number of pharmaceutical and medical equipment firms dwarfs the number of other firms. As a result, this study will treat pharmaceutical and medical equipment firms separately from the other group of high-tort firms.

C. *Financial Data and Summary Statistics*

This study focuses on manufacturing firms with SIC codes between 2000 and 4000. This range includes only manufacturing firms and excludes financial and services firms. Financial data for all the firms in the sample was collected from Compustat, a proprietary database containing detailed financial information for publicly traded firms traded on American stock exchanges.[73] Table 1 presents summary statistics for many of the important variables used in the

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72. "Large" was defined as twice as many hits for search 1 than for search 2.

73. Because Compustat focuses on public firms, the conclusions are necessarily speculative with respect to closely held firms. Given the strength of the redistributional motive for high-tort-risk firms, however, a failure of the redistributional prediction for publicly traded firms bodes ill for the theory's predictive power with respect to closely held firms.

analysis. The dataset from which these figures are based contains data from 5,592 firms.[74] For each firm, the dataset contains an average of almost seven years of data (6.802 years per firm on average). The total number of firm-year observations in the dataset is therefore *5,592*6.802 = 38,040* firm years. Table 1, as well as all of the other included tables, uses the firm (and not the firm year) as the basic unit of observation. Thus, the averages in Table 1 are averages of the average value for each firm.[75]

Table 1. Summary Statistics

Variable	Mean	Standard Deviation	Percent of Observations at Zero	Number of Observations (Firms)
Secured Debt (millions of dollars)	$36.8	270.3	18.4%	5,581
Total Long-Term Debt (millions of dollars)	$219.2	1,329.7	8.6%	5,580
Total Firm Assets (millions of dollars)	$1,065.5	5,951.9	0.0%	5,581
Property, Plant, and Equipment—Total (millions of dollars)	$680.7	4,154.9	0.0%	5,581
Employees	4,651.2	20,413.6	0.0%	5,425
Secured Debt–to–Total Debt Ratio	0.31	0.28	18.4%	5,581
Secured Debt–to–Hard Assets Ratio	0.18	0.24	18.4%	5,581
Secured Debt–to–Total Assets Ratio	0.09	0.13	18.4%	5,581

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74. This includes pharmaceutical and medical firms.

75. To explain further, suppose that Firm A is a representative firm, and there are two years (1 and 2) and two variables (secured debt and tort risk). Suppose that in year 1 Firm A has 1 unit of secured debt and 1 unit of tort risk and that in year 2 Firm A has 1.5 units of secured debt and 1 unit of tort risk. Thus, Firm A's average secured debt is *1.25 = (1+1.5)/2*, and Firm A's average tort risk is *1 = (1+1)/2*. In calculating the averages presented in Table 1, Firm A is entered as one observation with secured debt equal to 1.25 and tort risk equal to 1, rather than as two firm-year observations. The reasons for this choice are explained in Part III. *See infra* text accompanying notes 87–88.

Compustat collects data for large, publicly traded firms. As a result, the average firm in the dataset is large. It has $36.8 million of secured debt, $219.2 million of total long-term debt, hard assets of over $680 million, total assets of approximately $1.06 billion, and more than 4,650 employees. The data for the firms is widely dispersed. Note how the standard deviations for many of the variables in Table 1 are greater than the means. This occurs because the size distribution of the firms in the sample is uneven. There are many more smaller-than-average firms in the sample than larger-than-average firms. A few very large firms help skew the distributions of the variables.[76]

Not all firms have secured debt. Indeed, approximately 18 percent of the firms in the sample have no secured debt at all. This number is similar to the figure obtained from previous research.[77] On average, secured debt makes up 31 percent of all debt for firms that have at least some debt (the secured debt–to–total debt ratio is .31).[78] Thus, secured debt is an important part of firms' debt composition, although it is far from ubiquitous. Creditors do not hold collateral on most of the firms' assets. In fact, the average firm in the sample has a ratio of secured debt to property, plant, and equipment (a term that reflects the number of "hard assets" the corporation has) of .18—only 18 percent of the average firm's hard assets are securitized, suggesting that lack of hard assets does not constrain most firms from issuing secured debt. Secured debt comprises an even smaller percentage of firms' total assets; the average secured debt–to–total assets ratio is only .09. Note that the secured debt variable includes capitalized leases. Thus, the secured debt variable captures any attempt by companies to evade tort creditors through long-term "sale and leaseback" arrangements or similar types of securitizations.

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76. Note that the values of most variables used *infra* are capped above and below at the 5 and 95 percentiles, respectively. This technique helps prevent outliers from driving the results. This process does not affect the primary focus of this Article (the use of secured debt by high-tort-risk firms). It does affect the estimated coefficients of many of the control variables presented in Table 3, however.

77. *See* Barclay & Smith, *supra* note 19, at 904 tbl.II (finding that 24 percent of firms did not have secured debt).

78. Note that some firms have no debt of any type. These firms do not appear in the calculation of the ratio of secured debt to total debt because the ratio is undefined for these firms—the denominator, total debt, is zero. This explains why there are fewer firm-year observations making up the secured debt–to–total debt ratio as compared with the other ratios presented in Table 1. It also explains why the secured debt–to–total debt ratio does not simply equal the mean for secured debt amount divided by the mean for total debt amount.

III. STATISTICAL ANALYSIS OF THE
RELATIONSHIP BETWEEN TORT RISK AND SECURED DEBT USAGE

With these stylized facts regarding secured debt usage in mind, I examine the relationship between secured debt usage and tort risk, and this Part presents the data analysis. It begins with an analysis of summary statistics of firms with different tort characteristics. The Part continues with Tobit analyses, a form of regression analysis to help control for other factors that might be driving any association of secured debt usage with tort risk. Finally, the Part relies on time-series evidence to isolate further the impact of tort risk on secured debt usage from other industry specific characteristics driving secured debt usage.

A. *Simple Statistical Analysis of Secured Debt Usage*

Recall that the redistributional theory of secured debt predicts that firms at risk of tort liability–related bankruptcies should have greater amounts of secured debt relative to otherwise similar firms that do not have high tort liabilities. Before testing this hypothesis through regression analysis, this Section presents some simple statistical comparisons of "high-tort" firms with respect to other firms.

Table 2 divides the firms in the sample according to several measures of tort risk and compares the ratios of secured debt to hard assets and secured debt to total debt for high-tort-risk and low-tort-risk firms. These ratios are chosen over other measures of secured debt usage for several reasons. First, the theoretical literature examines the tradeoff between secured debt and other types of debt. This tradeoff is best analyzed empirically through the use of the secured debt–to–total debt ratio. Second, using a ratio facilitates empirical comparisons of firms of very different sizes by putting relative secured debt usage of any firm on a comparable scale.

The first row of Table 2 presents figures for firms that are not identified as high tort risks. This group consists of all firms not identified as "high tort" using the methods described in Part II. Secured debt accounts for 31 percent of total debt for these non-high-tort "control group" firms, and only 16 percent of the control group firm's hard assets are secured. The low figure suggests that limits on securable assets do not constrain non-high-tort firms from obtaining more secured debt.

*Table 2. Comparative Means and Standard Deviations
     (5,502 firms in the sample)*

Category of Firms (number of firm-year observations)[79]	Secured Debt–to–Total Debt Ratio	Secured Debt–to–Hard Assets Ratio
All Firms Not Identified as "High-Tort" Firms (4,733 firms, 32,180 firm years)	.31	.18
Cigarette Firms (10 firms, 65 firm years)	.11	.12
Firms with Large Asbestos Liabilities (6 firms, 57 firm years)	.15	.18
Pooled High-Risk Sample (18 firms, 130 firm years)	.12	.13
High-Tort-Risk Firms Identified by Westlaw (156 firms, 987 firm years)	.24	.21
Pharmaceutical and Medical Equipment Firms (613 firms, 7,259 firm years)	.33	.14

The second through fifth rows of Table 2 present data for various categories of high-tort-risk firms.[80] Row two analyzes cigarette manufacturers.[81] Secured debt accounts for a much *lower* proportion of total debt for tobacco firms than for the average firm not facing high tort risk (only 11 percent of total debt for cigarette as compared with 31 percent for the control).[82] This contradicts the redistributional theory's prediction that high-tort firms should have higher proportions of secured debt. Taken alone, this finding means relatively little, however. First, the small number of tobacco firms (ten) in the sample cautions against making overly broad interpretations of the data.[83] In addition, non-tort-related differences

79. A firm-year observation is a datum for a given firm in a given year. Thus, if Compustat contains data on secured debt for Firm A for the years 2000 and 2001, then there will be two firm-year observations for Firm A.

80. See *supra* Part II.B for a discussion of these categories.

81. Note that the cigarette manufacturer statistics are derived from only sixty-seven firm-year observations. As a result, these figures must be treated more skeptically than the statistics presented in the first row.

82. A t-test reveals that the cigarette firms' mean ratio of secured debt to total debt is lower than that of the control firms at the 99 percent significance level. This t-test, however, treats each firm year as distinct. The true significance level may therefore be somewhat smaller.

83. Because the unit of observation is the firm and Table 2 presents averages of averages, the data for the ten firms is derived from sixty-five firm years. Thus, the data are more accurate than the ten firms figure would initially suggest and, as a result, better inferences can be made.

between cigarette firms and the "control group" may be the cause of these differences. One possible explanation of these differences would be that cigarette firms' secured debt capacities are limited by their securable assets. If so, cigarette firms are unable to obtain more secured debt because they have nothing to use as security. The data, however, do not support this hypothesis. Cigarette firms have a lower ratio of secured debt to hard assets than the control group (12 percent as opposed to 18 percent). Moreover, both groups appear to have plenty of securable assets available to collateralize loans; less than 20 percent of hard assets are secured.

These results repeat themselves for firms facing large asbestos liabilities. Firms facing large asbestos liabilities are ideally situated to use secured debt for redistribution. Nevertheless, secured debt accounts for a smaller proportion of their debt loads than for the control group (15 percent for high asbestos liability firms as compared to 31 percent for the control group). Here too, the results cannot be attributed to lack of securable assets. Secured debt equals only 18 percent of these firms' hard assets, making it unlikely that the asset constraint is preventing these firms from obtaining more secured debt.

As with cigarettes, however, the results must be treated with caution because of the limited size of the asbestos firm sample. To address this issue, Table 2 presents a pooled high-risk sample consisting of tobacco and asbestos firms as well as two other high profile mass tort bankruptcy firms (Dow Corning and A.H. Robins). The pooled sample also has considerably lower ratios of secured debt to total debt (12 percent) and secured debt to hard assets (13 percent) than the control group. Firms in the Westlaw-identified high-tort industries[84] have considerably lower secured debt proportions than the control group of non-high-tort firms.

The results for pharmaceutical and medical devices firms provide limited support for the redistributional theory. Indeed, these firms have a slightly higher ratio of secured debt to total debt than the control group (33 percent for the pharmaceutical and medical devices firms as opposed to 31 percent for other firms). These results should be treated with caution for at least two reasons, however. First, the link between the pharmaceutical industry and tort risk is far weaker

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84.   *See supra* Part II.B.

than for asbestos or tobacco. Second, many other factors may be causing these differences.

Because the simple statistics presented here do not control for a myriad of other factors, firm conclusions based on these results are impossible. Nevertheless, one observation is justified: redistribution's ability to explain the pattern of secured debt is limited at best. If redistribution is a principal determinant of secured debt, then firms with near-perfect opportunities to engage in redistribution through secured debt should do so, regardless of whatever other factors militate against the use of secured debt. The fact that high-tort-risk firms such as tobacco and asbestos firms have lower-than-average secured debt contradicts the notion that redistribution is a prime motive for secured debt. Instead, the data suggest that something other than redistributional motives is determining secured debt usage.

B.   Regression Analysis of Secured Debt Usage: Tobit Model

Simple statistics are instructive, but a robust identification of the effects of redistribution on secured debt usage requires more sophisticated techniques. Section A demonstrated that firms with high tort risk use smaller amounts of secured debt. Although these results cast doubt on the redistributional theory of secured debt, their reach is limited. To address these concerns and control for other determinants of secured debt usage, I turn to regression analysis.

Previous studies of secured debt identified several non-tort-related factors affecting secured debt usage.[85] These factors include market-to-book ratio, earnings, marginal tax rates, size of firm, cash availability, and country and state of incorporation. In addition to these variables, the regressions control for the year of the observation and the exchange upon which the stock is traded. These variables control for other potential differences, unrelated to tort risk, between high-tort firms and other firms.

Regressions using secured debt–to–total debt ratios or secured debt–to–hard assets ratios have a censored dependent variable. Even if a firm "wants" to hold negative amounts of secured debt, the firm would not be able to—the minimum amount of secured debt is zero. Such censoring can bias the estimates of the effects of various factors

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85.   *See generally* Barclay & Smith, *supra* note 19 (analyzing various factors that may impact the type of securities firms issue, including growth and investment opportunities and tax structures); Berger & Udell, *supra* note 19 (analyzing the relationship between firms' credit risk and the issuance of secured debt).

using the Ordinary Least Squares (OLS) model. To adjust for the bias, this study employs the Tobit model.[86]

The appropriate unit of observation for the Tobit regressions is also a source of concern. The tort indicator variables vary across firms, but they do not vary across years within the same firm; a tobacco firm is always a tobacco firm. As a result, a "pooled" Tobit regression model treating each firm-year observation as distinct will produce inappropriately small standard errors for the effects of tort risk. This specification "thinks" there is more data than there actually is.[87] To address this concern, the unit of observation for the regressions will be the mean values across years for each individual firm. This procedure reflects the source of variance of the tort-risk variables of interest and produces more accurate standard error estimates.[88] Mathematically, the specification is:

$$\overline{sdebt}_i = \overline{X'}_i \beta + \delta \times \overline{tort}_i + \varepsilon_i$$

where $\overline{sdebt}_i$ is the average (across years) secured debt–to–total debt ratio for firm i, $\overline{X'}_i$ is a vector of control variables averaged across years,[89] $\overline{tort}_i$ is an indicator variable for whether or not the firm is a high-tort-risk firm (several different measures of this risk are used),[90]

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86. For a discussion of the Tobit model, see ANGUS DEATON, THE ANALYSIS OF HOUSEHOLD SURVEYS 85–92 (1997). Note that the additional assumptions made by the Tobit model to correct for the bias caused by censoring, such as homoskedasticity and normality of the error terms, are themselves suspect. *See id.* Indeed, sometimes the Tobit cure is worse than the censoring disease. Furthermore, ordinary Tobit regressions treat all observations identically, ignoring potential correlations between observations of the same firm in different years. To address these concerns, several procedures are employed. The standard errors reported in the regressions are estimated using a bootstrap procedure to correct for potential clustering of error terms within firms across years. The bootstrap procedure also helps adjust standard errors for potential heteroskedasticity. Bootstrapping, however, does not adjust point estimates for potential heteroskedasticity biases. Professor James L. Powell's Censored Least Absolute Deviation (CLAD) model, by contrast, produces consistent point estimates in the face of heteroskedasticity. *See* James L. Powell, *Least Absolute Deviations Estimation for the Censored Regressions Model*, 25 J. ECONOMETRICS 303, 303 (1984). As a result, I compare some of the Tobit point estimates with estimates produced by the CLAD model. The two procedures produce point estimates within 10 percent of each other, suggesting that heteroskedasticity does not cause large biases in the Tobit estimates.

87. Because there is no variation in tort risk within firms, a fixed-effects regression model is not feasible. For more discussion of this issue, see *infra* Part IV.C.1.

88. The standard error estimates for the control variables, however, will tend to be underestimated because the regression exploits only between firm and not within-firm variation.

89. See *supra* text around note 85 for a discussion of the control variables.

90. For a discussion of these measures, see *supra* Part II.

and   is a normally distributed, homoskedastic error term that is uncorrelated with the regressors. If the redistributional theory is empirically important (the "null hypothesis" for this study), then the tort coefficient (δ) should be positive and significantly greater than zero. If the redistributional theory does not have predictive power, then (δ) may be zero or even negative.

Table 3[91] presents results of Tobit regressions using this specification.[92] Even after controlling for many other factors, Table 3 shows that tobacco firms use *less* secured debt than other firms. Being a tobacco firm is associated with a "desired"[93] decline in a firm's secured debt–to–total debt ratio of approximately .14, *ceteris paribus*—a substantial decrease. This estimated effect is imprecisely estimated, however. Indeed, the coefficient estimate is not significantly different from zero at the 5 percent level. The results are more significant (both statistically and economically) for the sample of firms that ultimately declare bankruptcy as a result of asbestos liability. These firms have a "desired" secured debt–to–total debt ratio that is .48 lower than would otherwise be expected.[94]

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91. Results based on Tobit regressions of firm's secured debt–to–hard debt ratios (dependent variable) on the variables listed in the table. Each regression has approximately 4,300 separate observations and includes other (statistically insignificant) control variables such as the standard deviation of earnings and a dummy variable for tax carry forwards.

92.   The results presented here are robust to the inclusion of many other potential control variables, including standard deviation of earnings, dummy variables for the presence of tax carryforwards, and measures of abnormal earnings. Note also that the regressions do not include firms that are in bankruptcy because their financial data may be radically altered by the bankruptcy process. In addition, the results are robust to the use of other dependent variables. For example, using the ratio of secured debt to market value, rather than the ratio of secured debt to total debt, does not change the results appreciably with the exception of the pharmaceutical firms' regression. This exception is not surprising given the high value of intangibles for pharmaceutical firms.

93.   Because the topic of interest is the impact of tort liability on the underlying propensity of firms to use secured debt for both firms that do and do not currently have secured debt, the ordinary Tobit regressions coefficients are the appropriate coefficient of interest. This interpretation applies to all of the regression results. Note that the values cannot be mechanically applied to other potential values of interest, such as the impact of a change in tort's priority structure on the probability that firms will issue any secured debt. Instead, other adjusted estimates must be used. For a helpful discussion of the interpretation of Tobit coefficients, see generally Lee Sigelman & Langche Zeng, *Analyzing Censored and Sample-Selected Data with Tobit and Heckit Models*, 8 POL. ANALYSIS 167 (1999).

94.   When a dummy variable indicating whether or not a firm ever declares bankruptcy during the time period is included in this regression, the effect of being an asbestos firm has an even larger downward impact on secured debt amounts. This is because the average (non-asbestos) firm that declares bankruptcy has an above-average ratio of secured debt, making the asbestos companies' low secured debt usage even more exceptional.

Table 3. Tobit Regressions of the Impact of Tort Risk on Secured Debt Usage

Variable	Tobacco Firms Estimate (Standard Error)	Asbestos Firms Estimate (Standard Error)	Asbestos & Tobacco Pooled Estimate (Standard Error)	Products Liability Estimate (Standard Error)	Pharmaceutical Firms & Medical Equipment Mfgs. Estimate (Standard Error)
Tobacco Company	−.141 (.132)				
Company with Asbestos Liability		−.476 (.201)*			
Tobacco and Asbestos Companies			−.254 (.109)*		
Company in Industry Identified as High Tort by Westlaw				−.071 (.026)*	
Pharmaceutical Company or Medical Equipment Maker					.038 (.012)
Market-to-Book Ratio	−.0038 (.0015)*	−.0037 (.0015)*	−.0038 (.0015)*	−.0039 (.0015)*	−.0045 (.0015)
Dividends as a Percentage of Total Assets	−.23 (.099)*	−.22 (.099)*	−.22 (.099)*	−.22 (.099)*	−.23 (.099)*
Net Income as a Percentage of Fixed Assets	.031 (.0043)*	.030 (.0043)*	.030 (.0043)*	.031 (.0043)*	.034 (.0045)*
Log of Firm Value	−.0028 (.0030)	−.0023 (.0030)	−.0024 (.031)	−.0032 (.0030)	−.0023 (.0030)
Tax Rate	−.0024 (.0061)	−.0024 (.0060)	−.0024 (.0061)	−.0024 (.0061)	.0023 (.0061)
Foreign Company	−.135 (.016)*	−.134 (.016)*	−.133 (.016)*	−.132 (.016)*	−.134 (.016)*
Exchange Controls	Yes	Yes	Yes	Yes	Yes
Year Controls	Yes	Yes	Yes	Yes	Yes
Delaware Controls	Yes	Yes	Yes	Yes	Yes
Pseudo R-squared	.146	.148	.149	.149	.150

This estimate is significantly different from zero at the 5 percent level, although the estimate is still quite imprecise. The imprecision of the tobacco and asbestos company tort-risk estimates is not surprising— very few companies can be clearly identified as tobacco or asbestos liability–risk companies, meaning that the small sample size limits the statistical power of the regressions. Nevertheless, the magnitude of the negative effect of high tort risk contradicts the redistributional theory of secured debt. In addition, Table 3 presents the statistics of the pooled asbestos and tobacco companies to help address the limited sample issue. When these two groups of high-tort companies are combined, the results are both economically and statistically significant. High-tort-risk companies with asbestos or tobacco liability have secured debt–to–total debt ratios that are .25 below expectation, *ceteris paribus*.

The fourth column identifies tort risk using Westlaw to identify industries subject to considerable products liability risk. The group of companies identified using this procedure is considerably larger than the group of tobacco or asbestos companies, enabling more precise identification. The link between potential mass tort bankruptcies and tort risk is weaker for the "Westlaw group," however, because it includes companies and industries wherein mass tort risk is considerably smaller than for the asbestos or tobacco industries. As expected, the Westlaw tort-risk variable coefficient is both smaller in size and more precisely estimated than the tort-risk coefficients in the first three columns. Companies in high-tort industries have secured debt–to–total debt ratios that are .071 lower than expected. Thus, the pattern recurs—high-tort companies have less secured debt than expected. Although (as predicted) the magnitude of the effect goes down considerably, the effect remains statistically significant.

The final column of Table 3 examines secured debt usage amongst pharmaceutical firms and medical equipment manufacturers.[95] This is a large group of companies, enabling greater statistical precision. As with the tort-risk firms examined by Westlaw, however, the salience of tort risk for these firms is considerably smaller than for firms facing tobacco and asbestos liability. Yet again, both the size of the estimated "tort effect" and the standard error of this estimate are smaller than the coefficients reported for asbestos or tobacco firms. Interestingly, pharmaceutical firms are the only tort-

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95. The results do not change appreciably if these two categories are separated.

risk firms with greater secured debt usage than other firms, other things being equal. The size of the positive effect is quite small but statistically significant.[96] Indeed, the magnitude of the positive effect on secured debt usage is considerably smaller than the negative effects witnessed for the other categories of tort risk. Because the other categories of tort risk are more plausible tests of the redistributive hypothesis, the small positive effect found for the pharmaceutical and medical equipment manufacturers regression does not appear to offer compelling evidence for the redistributive hypothesis.

The impact of other factors on secured debt usage generally comport with previous estimates.[97] A firm's market-to-book ratio is an indicator of future investment opportunities and growth options. Because secured debt hinders a firm's ability to take advantage of growth opportunities (by allowing a creditor to limit the uses of a given asset), one would expect firms with high market-to-book ratios to have low secured debt levels. Indeed, previous studies have found that "firms with more growth options . . . (as proxied by high market-to-book ratios) issue significantly fewer fixed claims [including secured debt]."[98] The results in Table 3 confirm these results, as a higher market-to-book ratio is associated with a statistically significant, but economically small, lowering in the amount of secured debt. Another robust conclusion regarding secured debt is that large firms use less secured debt than small firms.[99] The regressions reported here replicate this finding. Firms with higher value have less secured debt as a proportion of total debt, although the effect is not statistically significant. Marginal tax rates have little to no impact on secured debt ratios—also a finding that has been made in previous empirical studies.[100] The regressions confirm this hypothesis, with cash being negatively associated with secured debt proportions. Foreign firms consistently have less secured debt in the regressions. This may be caused by the fact that foreign firms traded on U.S. markets are unusually large and successful firms.

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96. High secured debt usage by pharmaceutical companies is consistent with principal agent explanations of secured debt. In a research-driven, high-risk, high-return field such as pharmaceuticals, the principal-agent problems that secured debt potentially mitigates are particularly salient. *See infra* Part I.A–B.

97. *See generally* Barclay & Smith, *supra* note 19.

98. *Id.* at 908. For the full results, see *id.* at 905 tbl.III.

99. *Id.* at 906 tbl.IV.

100. *Id.* at 911 tbl.V.

Firms that pay high amounts of dividends to common shareholders have considerably less secured debt than other firms. Firms paying dividends have ample cash flow to finance their own operations (otherwise they would not be paying discretionary dividends) and are therefore unlikely to submit to the monitoring and restrictions imposed by secured debt. One surprising result of the regressions is that firms with higher annual income as a proportion of fixed assets have higher secured debt–to–total debt ratios. This result appears counterintuitive. One would think that more profitable companies would have less need for secured debt, yet the opposite phenomenon is observed. The size of the impact is considerably less than the negative impact of dividends, however. Combining these two results, the regressions suggest that mature and profitable firms have less secured debt as a proportion of total debt than other firms.

In total, the results of the Tobit regressions support the tentative conclusions made in Section A. Even after controlling for many other variables affecting secured debt usage, firms with high tort risk use less secured debt, contradicting the redistributional theory of secured debt.

C.   Time-Series Analysis

Cross-sectional regressions such as those presented in Table 3 are far from perfect, however. If any unobserved variables are correlated with the variables presented in the regression, then the regression estimates may be biased. To examine this possibility, this Section turns to time-series analysis.

Two obstacles prevent ordinary time-series fixed-effects regression with the data presented here. First, the Compustat data constitute an exceedingly unbalanced panel. Few firms appear unchanged in the database for the entire eleven-year span of the data. Many firms merge, are acquired, go private, or become bankrupt over the years in the database. As a result, firm-level fixed-effects regressions are subject to many sources of bias. Second, fixed-effects regressions require within-unit variation in the variable of interest. The "high-tort" identification techniques do not provide for within-firm variation in tort risk. Another source of variation is required. To address these difficulties, this Article employs two related specifications.

1. *Tobacco Industry "Fixed Effects."* Because the turnover in firms makes ordinary fixed-effects regressions of firm-level data impractical, this Section adopts the industry as the unit of observation. Although there is considerable turnover in firms within industries, each industry (as represented by a three-digit SIC code) remains far more stable. As a result, this Section creates industry level "observations" with a weighted average of all firms in a given industry in a given year.[101]

The tobacco industry offers a promising source of within-industry tort-risk variation. Tobacco firms' products liability has been steadily increasing throughout the years in the sample. The threat to firm survival caused by tobacco liability was much lower in 1990 than in 2001. For example, a search of major U.S. news sources on the LexisNexis database found that the words "tobacco," "products liability," and "bankruptcy" only appeared in the same sentence three times during the years 1990 through 1993. The same combination of words appeared in the same sentence nineteen times during the 1994–1997 period and fifty-six times during the 1998–2001 period, strongly suggesting that the risk of mass tort bankruptcy was increasing for tobacco firms from 1990–2001. The redistributional theory predicts that secured debt usage should increase as the tort liability risk of tobacco companies increased during the 1990s.

Table 4 examines secured debt usage for tobacco companies relative to other companies as tobacco liability increased through the 1990s. Table 4 presents average industry ratios of secured debt to total debt for industry categories for the years 1990–1993, 1994–1997, and 1998–2001, respectively. As the numbers indicate, the tobacco industry did not increase its secured debt usage over time, despite increasing tobacco liability during the decade. The tobacco industry employed little secured debt throughout the process.[102] Secured debt makes up slightly greater than 1 percent of total debt in the 1990–1993 and 1994–1997 periods. This number decreases to below 1 percent for the 1998–2001 period, in spite of the increase in tobacco liability. Secured debt usage in other industries also decreased, from 22 percent to 19 percent. In percentage terms, tobacco firms' secured

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101. *See* DEATON, *supra* note 86, at 116–27 (describing the method of econometric analysis employed here).

102. The numbers in Table 4 represent weighted averages. Because larger firms tend to have less secured debt than other firms, the weighted averages are lower than the unweighted averages presented in Table 2.

debt went down more than other firms'. Thus, the evidence once again contradicts the redistributional theory's prediction.

Table 4. Secured Debt Usage and Changes in Tort Liability Over Time[103]

	Secured Debt–to–Total Debt Ratio 1990–1993	**Secured Debt–to–Total Debt Ratio 1994–1997**	**Secured Debt–to–Total Debt Ratio 1998–2001**
Tobacco Industry	.011	.011	.007
All Other Industries	.22	.20	.19

2. *Secured Debt Usage and the Approach of Bankruptcy*. Examining the use of secured debt by firms approaching bankruptcy provides another means of determining whether or not secured debt is used for redistribution. As bankruptcy approaches, the expected value of secured debt's redistributional capacity increases.[104] With bankruptcy more probable, the value of secured debt's priority over other creditor classes grows larger. If the redistributional theory has explanatory power, then all firms in financial distress should therefore issue disproportionate amounts of secured debt, all other things equal. Ordinary firms' ability to issue redistributional secured debt will be constrained by pledge covenants held by contract creditors. Tort claimants such as asbestos claimants, by contrast, hold no such covenants. As a result, the larger the share of a firm's liabilities held by tort claimants, the easier it will be for a firm to issue secured debt to redistribute value away from creditors. In other words, firms facing mass tort bankruptcy should issue even more secured debt than other firms in financial distress.

This Section tests this hypothesis. First, I obtained a sample of all firms declaring bankruptcy between the years 1995 and 2002 from Compustat. This restriction ensures that the analysis compares firms in similar states of financial distress; any differences between the secured debt levels of the high-tort companies are not the result of differential levels of financial distress because all of the companies declared bankruptcy at approximately the same time. I then compare

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103. Weighted average of secured debt–to–total debt ratios for all of the firms in the tobacco industry. Average of weighted industry averages of secured debt–to–total debt ratios for the "all other industries" category.

104. *See, e.g.*, Scott, *Truth About Secured Financing*, *supra* note 2, at 1458.

the sample of bankrupt companies with the list of asbestos-related mass tort bankruptcies compiled by Professor White.[105] Five companies appear in both samples.[106] In addition, the mass tort bankruptcy list includes the Dow Corning Corporation, a prominent non-asbestos mass tort bankruptcy.[107] I assume that these six companies are mass tort–related bankruptcies, and that the other companies in the sample are ordinary bankruptcies. If the redistributional theory is correct, then the mass tort bankruptcy companies should have more secured debt as they approach bankruptcy than the "control group" of companies.[108]

The data contradict the redistributional theory's prediction. Firms approaching mass tort–related bankruptcies hold considerably *less* secured debt than other firms approaching bankruptcy. The first row of Table 5 displays data for firms that will declare bankruptcy as a result of mass tort liabilities within one year. These six firms do not have high proportions of secured debt. Their secured debt–to–hard assets ratio is just .08, while their secured debt–to–total debt ratio is .07. Firms within a year of bankruptcy that do not have abnormally large tort liabilities (the second row) have considerably higher proportions of secured debt. The nontort firms' secured debt–to–hard assets ratio is .30, while their secured debt–to–total debt ratio is also .30. Thus, firms not facing large tort liabilities hold approximately four times the proportion of secured debt when compared with firms approaching mass tort bankruptcy. T-tests of the hypothesis that the non–mass tort firms have a higher secured debt–to–hard debt ratio and a higher secured debt–to–total debt ratio than the mass tort firms

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105. *See* White, *supra* note 64, at 1320 n.8.

106. Missing data issues prevent more overlap between the two lists. To be included in this subset, a firm needed to have complete data for the four years preceding bankruptcy. As a result, a number of firms on Professor White's list cannot be included in the data analysis in this Section. The five companies are Federal Mogul, Inc; W.R. Grace & Co.; Kaiser Aluminum and Chemical, Inc.; Owens Corning, Inc.; and Solutia, Inc. Although Professor White's article lists many other asbestos-related bankruptcies, the other corporations mentioned in her list do not appear in the Compustat database.

107. *See In re* Dow Corning Inc., 86 F.3d 482, 486 (6th Cir. 1996). Dow Corning's bankruptcy was filed in response to large products liability claims related to silicone gel breast implants. *Id.*

108. Note that although the firms in the mass tort group obviously share the characteristic of large tort liabilities, they do not share many other traits. For example, the six firms come from five different SIC categories. As a result, it is unlikely (although not impossible) that the differences between the high-tort sample and the control group stem solely from unobserved differences unrelated to tort liability.

are significant at the 97 percent and 99 percent confidence levels, respectively, in spite of the very small sample size of high-tort firms.

Table 5. Secured Debt Amounts, Mass Tort Liabilities, and the Approach of Bankruptcy

Category of Firms (Number of Firms)	Secured Debt–to–Hard Assets Ratio (Standard Error of Estimate)	Secured Debt–to–Total Debt Ratio (Standard Error of Estimate)
Firms with Large Tort Liabilities within One Year of Bankruptcy (6 firms)	.08 (.078)	.07 (.055)
Firms without Large Tort Liabilities within One ear of Bankruptcy (50 firms)	.30 (.067)	.30 (.053)
Firms with Large Tort Liabilities Two Years from Bankruptcy (6 firms)	.17 (.165)	.15 (.131)
Firms without Large Tort Liabilities Two Years from Bankruptcy (48 firms)	.31 (.067)	.31 (.059)
Firms with Large Tort Liabilities Four Years from Bankruptcy (5 firms)	.01 (.005)	.01 (.012)
Firms without Large Tort Liabilities Four Years from Bankruptcy (40 firms)	.30 (.056)	.28 (.070)

This pattern of secured debt recurs as the lag between the observation year and the year of the bankruptcy declaration grows longer. For example, the data for firms within two years of a bankruptcy declaration are strongly similar to the data for firms within one year of bankruptcy. Firms within two years of mass tort bankruptcies have considerably less secured debt than firms within two years of bankruptcy that do not have large tort liabilities, although the absolute difference in secured debt proportions between the two categories is smaller than when the firms are within one year of bankruptcy. When the firms are four years from bankruptcy, the difference in secured debt amounts is greater, with mass tort bankruptcy firms having almost no secured debt, while the "control group" of firms continues to have reasonably high amounts. In total,

there is one robust conclusion: high-tort firms consistently have less secured debt than other firms near bankruptcy.

This finding strongly negates the redistributional theory. If secured debt is used to redistribute value away from nonadjusting creditors, then surely firms with large numbers of unprotected tort creditors should use large amounts of secured debt for redistribution when they are within one year of declaring bankruptcy. The redistributional benefits of secured debt will never be more obvious or appealing. The fact that such firms actually have *smaller-than-average and rapidly decreasing* amounts of secured debt as bankruptcy draws closer appears to present a strong refutation to the redistributional theory of secured debt.

IV. EVALUATION OF THE STATISTICAL RESULTS

The previous Part examined the redistributional theory's predictions regarding the use of secured debt in response to tort risk. The theory's prediction—that secured debt should be used to redistribute value away from tort claimants—was refuted in a number of different specifications. Indeed, high-tort firms typically had lower secured debt amounts than otherwise similar firms without tort risk. Because tort claimants are ripe for redistribution, these results suggest that redistributional motives are not an empirically important determinant of secured debt usage.

Although these findings are difficult to interpret in the context of the redistributional theory, they are less puzzling according to other theories. Agency theories, for example, make no strong predictions regarding secured debt usage by high-tort-risk firms. High-tort-risk firms are no more likely to suffer from agency problems than other firms. As a result, the agency cost–reducing characteristics of secured debt should be no more attractive for high-tort-risk firms than for other firms.

One variant of the agency cost theory of secured debt offers a particularly compelling explanation for these empirical results. Professors Patrick Bolton and David S. Scharfstein suggest that decisions regarding the distribution of debt priorities may be understood by focusing on two types of defaults: liquidity defaults, in which a firm lacks the cash to make debt payments; and strategic defaults, which result from opportunistic behavior by managers.[109]

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109. Bolton & Scharfstein, *supra* note 30, at 2.

Bolton and Scharfstein argue that the efficient type of debt depends upon the relative probabilities of strategic and liquidity defaults. If strategic defaults are more likely, then types of debt that deter opportunistic defaults are more desirable, even if these debt types raise the cost of reorganization in bankruptcy. When liquidity defaults are more likely, then debt that is easily restructured becomes more desirable because it reduces costs in liquidity defaults.

Applying this framework to secured debt,[110] secured debt reduces the incentive for strategic defaults by giving creditors the right to liquidate the company's assets following a default and reducing the possibility of reorganization, thus punishing the managers for their opportunistic behavior. This corresponds to the agency cost–reducing features of secured debt. These features of secured debt are less attractive in a liquidity default because they raise the costs of bankruptcy and reduce the chances of a potentially efficient reorganization.

Thus, secured debt will be least attractive when the probability of liquidity defaults is high relative to the probability of strategic defaults. Firms facing mass tort bankruptcies fall into this category. The probability of a liquidity default is high for these firms. If courts and juries find them liable for sufficiently high damages (a real possibility for many of these firms), then liquidity default will follow. Strategic defaults are relatively less likely, by contrast. Tobacco firms and the firms that fell victim to asbestos liability tended to be relatively mature firms with healthy cash flows, making them unlikely candidates for opportunistic defaults. At a minimum, there is no reason to think that high-tort firms face unusually high strategic default possibilities that outweigh the abnormally large risk of liquidity defaults. Furthermore, high-tort-risk firms are more likely candidates for reorganization than the average liquidity-defaulting firms. High-tort firms do not default because of an unhealthy business model, but rather because of large amounts of tort liability.[111]

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110.   Bolton and Scharfstein offer a brief analysis of secured debt. *See id.* at 16–17. Their analysis does not focus on the tradeoff between secured and unsecured debt, but rather on the choice of the number of secured creditors. *Id.* As a result, their conclusions are different than those presented here.

111.   Frequently, the tort liability stems from previous actions and is relatively independent of the companies' current business. Many of the asbestos companies in a later wave of bankruptcies acquired their liabilities from successor corporations. *See, e.g.*, Krull v. Celotex Corp., 611 F. Supp. 146, 148 (N.D. Ill. 1985) (describing the Celotex acquisition of asbestos liability from predecessor corporations). Their current businesses do not suffer from unusually

Anything that makes reorganization more difficult, such as secured debt, should be particularly unattractive for these firms.[112] In total, these considerations may explain why the high-tort-risk firms had less secured debt than otherwise comparable firms without significant tort risk.

CONCLUSION

The empirical results presented in this Article strongly suggest that companies do not use secured debt to expropriate value from tort claimants. Indeed, firms facing mass tort bankruptcy have less debt than otherwise comparable firms without high tort liabilities. This finding has numerous policy implications. Many commentators, fearing that firms would use secured debt for redistribution, have advocated superpriority for tort claimants.[113] The fears upon which these proposals are based are unfounded, however. Corporations do not use secured debt with priority to diminish the bankruptcy realizations of their tort claimants.

These results do not imply that superpriority for tort claimants should be rejected out of hand. Tort deterrence is still greater with superpriority than under the prevailing system, even if companies do not exploit the priority structure to the detriment of tort claimants. Nevertheless, superpriority for tort claimants must be treated with greater skepticism in light of these results. All of the rationales for superpriority depend upon the redistributional theory in some degree. Because the results presented in this Article cast serious doubt upon the redistributional theory and suggest that agency cost considerations dominate secured debt decisions, policymakers should hesitate before making decisions that may hinder secured debt's agency cost–reducing abilities.

This conclusion applies to partial priority proposals more generally. These proposals stem from fears of secured debt's redistributional capabilities.[114] If firms are not using secured debt for

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large tort risk. As a result, many high-tort-risk companies operate healthy businesses even after considering future tort risk.

112.   Managers of high-tort-risk firms may care more about the consequences of bankruptcy than the typical managers of a firm. Because high-tort-risk firms do not declare bankruptcy as a result of poor businesses, the managers may be unusually likely to lead the reorganized firm and may therefore care more about bankruptcy consequences than the typical manager.

113.   See *supra* note 11 and accompanying text.

114.   *See* Bebchuck & Fried, *Uneasy Case 1*, *supra* note 2, at 865–66, 891–904.

redistribution, however, then these proposals lose much of their analytic force—policymakers should not change priority rules to account for an empirically insignificant problem.

Finally, these results show that reports of the death of liability are greatly exaggerated. If firms do not adjust their capital structures to exploit the seemingly easy redistribution opportunity offered by secured debt's priority over tort claimants, then they are exceedingly unlikely to adopt more radical techniques that would enable firms to avoid liability completely. Future research is necessary, but such research may well show that other causes of the death of liability, such as undercapitalization, are just as empirically irrelevant as redistribution through secured debt.