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The Untenable Case for Chapter 11

Michael Bradley† and Michael Rosenzweig††

I. INTRODUCTION

Corporate bankruptcy law scholars generally view financial distress as an exogenous development. These scholars see bankruptcy, or "financial distress" or "insolvency," as a condition created by extrinsic factors that have rendered the firm unable to meet current obligations to creditors out of liquid assets.

Congress embraced this view in its adoption of the Bankruptcy Reform Act of 19781 and, more specifically, determined to push managers of financially troubled firms toward reorganization rather than liquidation.2 Simply stated, Congress believed that assets would be more highly valued if utilized in the industry for which they were designed, rather than scrapped,3 that "it is more economically efficient to reorganize than liquidate, because it preserves jobs and assets."4 Put differently, Congress was concerned that liquidations destroy

* Readers of the bankruptcy literature will recognize our indebtedness to Professor Baird for the title of our Article. See Douglas G. Baird, The Uneasy Case for Corporate Reorganizations, 15 J. LEGAL STUD. 127 (1986).
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2. See H.R. REP. NO. 595, 95th Cong., 1st Sess. 220 (1977), reprinted in 1978 U.S.C.C.A.N. 5963, 6179 ("The premise of a business reorganization is that assets that are used for production in the industry for which they were designed are more valuable than those same assets sold for scrap."); 123 CONG. REC. H35,444 (daily ed. Oct. 27, 1977) (statement of Rep. Rodino) ("For businesses, the bill facilitates organization, protecting investments and jobs."); MARTIN J. Bienenstock, Bankruptcy Reorganization 6-10 (1987).
valuable firm-specific assets and impose substantial costs on corporate stakeholders such as security holders, employees, suppliers, customers, and communities, and therefore concluded that the law must afford managers of financially troubled companies the preferred alternative of court-supervised reorganization. In Congress’ view, easier access to the protections of Chapter 11 would enhance social welfare by preventing the inefficient liquidation of financially viable firms.

Before Congress’ adoption of the 1978 Act, corporate bankruptcy petitions seeking debtor reorganizations were filed under either Chapter X or Chapter XI of the Chandler Act. Generally speaking, Chapter X was designed for firms with public debt or equity, while Chapter XI governed the reorganization of private companies. Chapter X required the appointment of a trustee to manage the bankrupt firm and assigned to the Securities and Exchange Commission (SEC) a significant oversight role to ensure the fairness of the reorganization plan. Chapter XI left incumbent management in charge of the bankrupt company and contemplated no such role for the SEC.

Since managers naturally preferred Chapter XI to Chapter X, there was a good deal of litigation under the Chandler Act (often initiated by the SEC) over which chapter was appropriate. It was partly to eliminate this litigation that Congress in the 1978 Act consolidated Chapters X and XI (as well as Chapter XII, dealing with real estate reorganizations) into a single chapter, Chapter 11.

Chapter 11 significantly changed the law and practice of corporate reorganization, making it easier for managers to invoke bankruptcy protection and strengthening their control of the bankrupt firm. Most notably, Chapter 11 does not require that a debtor be insolvent in order to qualify for reorganization, and it includes a strong presumption favoring retention of management throughout the reorganization process. Thus, in the ordinary case, a Chapter 11 filing transforms a corporate debtor into the “debtor-in-possession” and leaves existing management in control of the firm’s resources. Congress apparently believed that a management team already familiar with the company’s business would be more likely to reorganize a troubled firm successfully than would a newly appointed trustee, particularly since the need for reorganization often arose from “simple business reverses” that were not management’s fault.


8. H.R. REP. NO. 595, supra note 2, at 232-34, reprinted in 1978 U.S.C.C.A.N. at 6191-94. Indeed, the legislative history suggests that Congress was concerned that managers threatened with ouster in favor of a court-appointed trustee might wait too long to seek reorganization, thereby rendering the less-favored alternative of liquidation more likely. Id.
This presumption favoring management's continued control, when combined with other provisions of Chapter 11 affording the corporate debtor considerable latitude regarding its treatment of creditors, effectively gave managers powerful incentives to pursue bankruptcy reorganization. Managers are more likely to keep their jobs by reorganizing rather than liquidating their firm, and during reorganization they can operate without the constraints ordinarily imposed by creditors. As we show below, one result of these incentives has been to increase the endogeneity of the corporate bankruptcy decision.

Even commentators who embrace bankruptcy law's implicit starting point—that the corporate bankruptcy decision is exogenous—have found much in the law to criticize. Focusing on the legal rules that govern management's choice between liquidation and reorganization and measuring those rules against the quite sensible notion that they should be designed to enhance the likelihood that corporate resources will be allocated efficiently, many of these scholars have argued that bankruptcy law is inefficient because it impedes the flow of corporate assets to higher-valued uses. These commentators argue that existing law encourages managers (acting in their own interest or in the interest of the equity holders who elected them) to avoid liquidation in favor of either court-supervised reorganization or continued operation of the company under circumstances that invite suboptimal managerial decisions. In the view of these scholars, debtholders disproportionately bear the risks of continuing a firm's operations, and managers will always prefer reorganization to liquidation as a form of bankruptcy protection because reorganization may permit managers


10. See supra note 9.


to effect wealth transfers from creditors (and perhaps other stakeholders) to equity holders.\textsuperscript{13}

These commentators have offered a variety of proposals for improving the existing bankruptcy system in one way or another, all of which are aimed at the deficiencies they perceive in court-supervised corporate reorganizations. Professor Roe, for example, argues that the law should require courts effectively to recapitalize "failing" firms by means of a public auction for a new equity issue.\textsuperscript{14} Professor Bebchuk proposes that claimants of a reorganized firm be given a package of stock and options that would effectively preserve the priorities of their claims during reorganization, irrespective of the firm's subsequent value.\textsuperscript{15} Professor Baird and Dean Jackson suggest modifications designed to preserve the firm-specific value of financially troubled companies.\textsuperscript{16}

All of these proposals share a common empirical assertion and a common perspective. The common assertion is that market-determined prices are better indicators of value than judicially-determined estimates. The common perspective is that "financial troubles" or "failures" are exogenous events. Even Professor Baird, who is perhaps the most skeptical regarding the social benefits of court-supervised corporate reorganizations, begins his article by stating that "[a] bankruptcy proceeding is a day of reckoning for all parties with ownership

\textsuperscript{13} To put this point differently, in Chapter 11 reorganizations managers may be able to avoid rigorous application of the "absolute priority rule," which is more rigidly applied in a straight liquidation under Chapter 7. See, e.g., Allan C. Eberhart et al., \textit{Security Pricing and Deviations from the Absolute Priority Rule in Bankruptcy Proceedings}, 45 J. Fin. 1457 (1990) (reporting that amounts paid to shareholders of bankrupt companies in excess of appropriate amounts under absolute priority rule represent 7.6\% of total amount awarded to all claimants). See also Lynn M. LoPucki & William C. Whitford, \textit{Bargaining over Equity's Share in the Bankruptcy Reorganization of Large Public Companies}, 139 U. Pa. L. Rev. 125 (1990) (arguing insignificance of deviations from absolute priority for large publicly-held corporations); Myron B. Slovin et al., \textit{Bankruptcy Resolution and Priority Rules: Market-Based Evidence From Chapter 11 Filing Announcements} (Aug. 1991) (unpublished manuscript, on file with authors) (same).

\textsuperscript{14} Roe, \textit{supra note 11}, at 559-97.

\textsuperscript{15} Bebchuk, \textit{supra note 11}, at 781-97. According to Professor Bebchuk's proposal, groups of investors with differing claims would each be awarded a set of option rights prioritized according to the importance of claims. \textit{Id.} Each option right would entitle the holder to either (1) full payment of money owed to the creditor if the company chooses to redeem the right, or (2) the right to purchase one unit of the reorganized company with an excise tax calculated to reflect the creditor's priority (the lower the priority, the higher the tax). \textit{Id.} at 785-88. Under this system, participants would not be able to claim that those below in priority have received too much. \textit{Id.} at 792-93.

\textsuperscript{16} See \textit{Jackson}, \textit{supra note 11}, at 209-24. Professor Baird suggests that the preservation of a firm's value may often be achieved more effectively through a "going concern" liquidation than through reorganization proceedings. See Baird, \textit{Uneasy Case}, \textit{supra note 11}, at 139-45. The current Bankruptcy Code, however, discourages going-concern liquidations by awarding different rights to investors depending on whether the firm is liquidating or reorganizing. \textit{Id.} at 146. Professor Baird argues that these discrepancies should be eliminated. \textit{Id.} at 146-47.
interests in an insolvent firm.” Professor Bebchuk is equally explicit in his assumption that insolvency is an exogenous state.

Different starting points, of course, often lead to different ways of looking at a problem. Our starting point is quite different from that of others, and as a result our critique of the law of corporate bankruptcy reorganization is also somewhat different. While we agree with the assertion that markets are more efficient than courts in determining values, we disagree with the notion that “financial distress” or “insolvency” is purely an exogenous event. We therefore embrace an alternative explanation for the cause of “bankruptcy,” an explanation whose public policy implications differ from the implications of both the congressional view of bankruptcy and the view of other bankruptcy law scholars.

If we think of “financial distress” or “insolvency” as the inability to meet current obligations to creditors out of liquid assets, then in a real sense, firms can choose to become “insolvent” by not maintaining a sufficient balance of such assets. As long as there is a possibility of court-supervised reorganization, corporate managers have no real incentive to maintain an “adequate” balance. More fundamentally, fashioning a firm’s capital structure obviously involves certain choices regarding the use of debt financing. To the extent that managers, influenced by the availability of bankruptcy protection, choose to burden their firms with “too much” debt or “impossible” debt-payment obligations, financial distress is hardly an entirely exogenous event.

On this view, corporate bankruptcy frequently is significantly endogenous, chosen by, rather than imposed upon, corporate managers.

17. Baird, Uneasy Case, supra note 11, at 127 (emphasis added).
18. Bebchuk, supra note 11, at 775 (“When a corporation becomes insolvent and bankruptcy proceedings are commenced, the corporation is either liquidated or reorganized.” (emphasis added)).
19. We find, in fact, that bankrupt firms are generally more highly leveraged under the 1978 Act than previously. The results of our examination of debt-to-asset ratios of bankrupt firms, reported in the Appendix in Table A.4, infra, reveal that firms filing bankruptcy petitions in the post-Act environment have substantially greater long-term debt than their pre-Act counterparts. This finding suggests that management’s attitudes about debt and the possible adverse consequences of excessive leverage have been significantly affected by the 1978 Act.
20. Later we report empirical findings supporting our claim that the 1978 Act in fact promoted corporate bankruptcies, prompting managers to begin thinking of a Chapter 11 filing as just another financial management tool. See infra Part III (discussing data regarding post-1979 Chapter 11 filings). This notion—that Chapter 11, rather than signifying the last gasp of a dying company, is often one of several alternatives that creative managers consider irrespective of a company’s solvency—has been widely chronicled in the popular press, especially recently. One recent article declared, for example, that “[b]ankruptcy practice has evolved into a major corporate planning tool,” and noted that the 1978 Act had “increased the availability and acceptability of the Chapter 11 alternative” by dropping “negative terms” and providing that “a debtor company may file for Chapter 11 for any legitimate business purpose, without showing grounds such as insolvency.” Harold L. Kaplan, Bankruptcy as a Corporate Management Tool, A.B.A. J., Jan. 1, 1987, at 64, 64-65. Another noted that a “new attitude exists . . . toward the word “bankruptcy,”” observing that bankruptcy reorganization “is considered a strategy rather than failure” and that bankruptcy lawyers “now play an integral role in the day-to-day operations of their . . . business clients, troubled or not.” Gary Taylor, Bankruptcy: No Longer a Dirty Word, Nat’l L.J., Mar. 14, 1988, at 1. The article concludes by quoting a leading bankruptcy practitioner: “Bankruptcy is a critical and important part of business, an option now that anyone needs to consider.” Id. at 25; see also Kate Ballen, Strategy for the
Viewing corporate bankruptcy as endogenous in some measure raises important issues of public policy, some of which have quite interesting empirical implications. Did the 1978 Act really enhance social welfare by promoting more efficient asset allocations? Or is Chapter 11 more appropriately viewed as a mechanism that permits managers to abridge contractual agreements with creditors and other stakeholders in order to enhance their own welfare? If the latter view is correct, then Chapter 11 almost certainly reduces social welfare.

In the next two parts we offer our theoretical and empirical analyses of these two competing hypotheses regarding the social welfare effects of court-supervised corporate reorganizations. Generally speaking, the theory we develop regarding such reorganizations derives from the view that the 1978 Act significantly changed the law of corporate bankruptcy. More specifically, the features of corporate bankruptcy law on which our thesis focuses—essentially those provisions that made it easier to seek reorganization and encouraged managers to do so—were prominently considered by Congress in the discussion leading to adoption of the 1978 Act and then conspicuously incorporated into Chapter 11. Accordingly, the changes in the law of bankruptcy reorganization effected by the 1978 Act provide us with an indirect means of testing empirically the validity of our views, which we attempt to do in Part III. By studying findings from corporate bankruptcies before and after the effective date of the 1978 Act, we can indirectly determine whether empirical evidence supports or refutes certain suppositions. Thus, if our starting point is correct, one should be able to observe tangible evidence of the increased endogeneity of the corporate bankruptcy decision following the effective date of the 1978 Act. Similarly, if, as Congress hoped, the Act enhanced social welfare by making it easier for managers to preserve valuable corporate assets, then the security holders of bankrupt firms should fare better in the post-Act environment than before.

We argue in Part II that existing bankruptcy law fails to provide managers with appropriate incentives to allocate corporate resources to their highest-valued uses. We then present, discuss, and interpret our empirical findings in

1990s: Bankruptcy, FORTUNE, Feb. 11, 1991, at 13 ("Filing for protection from creditors under the bankruptcy code used to be akin to contracting a social disease. Not anymore." The article quotes bankruptcy practitioner Thomas J. Salerno: "Chapter 11 is no longer an embarrassment. People have watched mega-companies like Texaco and Manville go in, clean up their balance sheets creatively, and come out whole."); Lawrence J. DeMaria, Market Place; An Overemphasis on Bankruptcies, N.Y. TIMES, Apr. 13, 1989, at D8 ("Bankruptcy is no longer the worst word on Wall Street. In fact, bankrupt companies are attracting investors as though Chapter 11 contained a formula for success instead of a description of failure."); G. Heileman and Its Bondholders, N.Y. TIMES, Jan. 27, 1991, § 3, at 2 ("Used to be that a bankruptcy filing was a company's last exit. But these days, it's more like a highway tollbooth."); Stephen Labaton, Bankruptcy is Better in America, N.Y. TIMES, Jan. 23, 1990, at D1, D2 ("America has the only legal system that in a sense actually encourages a company to seek bankruptcy protection long before a full-blown financial collapse is near, allowing a business to file a Chapter 11 petition even though it is not insolvent.").

Observations such as these plainly confirm the dramatic impact the 1978 Act has had on the thinking of corporate managers; to think of corporate bankruptcy as a largely exogenous phenomenon is, quite simply, anachronistic. See Elizabeth Warren & Jay L. Westbrook, The Law of Debtors and Creditors 669-96 (1986). But see Susan Rose-Ackerman, Risk Taking and Ruin: Bankruptcy and Investment Choice, 20 J. LEGAL STUD. 277 (1991) (arguing that most managers seek to avoid Chapter 11 reorganizations).
detail in Part III. In brief, our findings and their implications are as follows. First, the evidence supports our view that corporate bankruptcy is more endogenous in the post-Act environment. We find that in the wake of the 1978 Act the frequency of corporate bankruptcy filings has increased dramatically, the relationship between the number of bankruptcy filings and general economic conditions has become more attenuated, a smaller fraction of bankrupt firms are delisted from the major exchanges in the year before their bankruptcy filing than in the pre-Act period, and bankrupt firms are generally in better financial condition than firms filing before the 1978 Act.

Second, we find that stockholders of bankrupt firms lose significantly greater wealth in the post-Act environment than before the Act. Specifically, we compare the experiences of the stockholders of bankrupt firms before and after the Act became effective and find that, while stockholders of bankrupt firms lose significant wealth in both periods, the loss to stockholders is significantly greater in the later period. We also find that under the Act, corporate insiders of such firms sell significantly more of their stockholdings in the two years surrounding the bankruptcy filing.

Third, we find, just as we do with stockholders, that bondholders of bankrupt firms also lose significantly more wealth in the post-Act period than previously. Consistent with this finding, we also observe a dramatic increase in default premiums on corporate debt under the Act.

In sum, our empirical results indicate that both stockholders and bondholders of bankrupt firms suffer dramatically greater losses under the 1978 Act than previously. These results not only challenge the theory of corporate bankruptcy advanced by proponents of the 1978 Act—that reorganization enhances social welfare and should therefore be facilitated and promoted—but also raise an important and intriguing question regarding bankruptcy law and policy: If stockholders and bondholders, the only corporate stakeholders with readily measurable claims, are both losers under Chapter 11, then who are the winners?

We believe that, insofar as corporate bankruptcies are concerned, the principal beneficiaries of Chapter 11 (excluding the legions of lawyers, accountants and financial advisors who earn substantial fees from bankruptcy reorganizations) are corporate managers. Chapter 11, in other words, may be seen as a kind of management defensive tactic against corporate debtholders which, like certain antitakeover defensive measures, enhances management’s wealth at
the expense of corporate security holders. Chapter 11, like many takeover
defensive measures, is justified by its supporters as a mechanism to preserve
and protect valuable corporate assets. And as is the case with many takeover
defenses, the data show that Chapter 11 preserves and protects the jobs of
corporate managers, not corporate assets.

In Part IV, we offer a proposal for reforming the law of corporate bankrup-
tcy to address the problems that we have identified. Our proposal, which
recognizes both the inefficiencies on which we elaborate in Part II and the
increased endogeneity of the Chapter 11 decision, is quite simply to repeal
Chapter 11 of the Bankruptcy Code (insofar as it pertains to corporations) and
thereby abolish court-supervised corporate reorganizations, effectively reassign-
ing a "failing" firm's property rights to those with the best incentive to allocate
the firm's resources efficiently. This proposal, in a sense, may be viewed as
the extreme version of a "market-based" solution to corporate bankruptcy.

Under our proposal, firms would never reach a state of "insolvency"; obligations owed to creditors would be financed through the sale of new
residual claims, and if such claims could not be sold, the firm's residual
claimants would relinquish their claims to the firm's net cash flows. In such
a regime, there would never come a day of reckoning when all claims to the
corporation would have to be valued and cashed out. This reform, we argue,
would improve the efficiency of the corporate bankruptcy system while signifi-
cantly reducing the deadweight costs of bankruptcy itself.\footnote{The deadweight costs of bankruptcy are the costs of the reorganization process, including the costs of judicial resources and legal, accounting, and financial advisory fees.}

II. AN ECONOMIC ANALYSIS OF COURT-SUPERVISED CORPORATE
REORGANIZATIONS

A. Overview

By and large, the economic critique of corporate bankruptcy reorganization
parallels that developed by legal scholars.\footnote{See, e.g., sources cited supra note 11. This is not surprising since, as we argue, voluntary corporate
bankruptcy is often more appropriately viewed as a legal, rather than an economic, event.} Most economists examine corpo-
rate bankruptcy from the perspective of a bankruptcy judge, who is confronted
with the choice of either liquidating the firm to pay its creditors or reorganizing
it while scaling back creditor claims and (usually) leaving the firm's managers
in control. We refer to the choice between liquidation and reorganization as the Chapter 11 dilemma.\textsuperscript{25}

The economic analysis of the Chapter 11 dilemma treats the firm’s financial condition as having been determined by some prior exogenous event(s). This view of the Chapter 11 dilemma embraces the “day of reckoning” notion that is so pervasive in the legal literature.\textsuperscript{26} Viewing the Chapter 11 dilemma in this setting, economists typically weigh the consequences of liquidating a firm that has greater value as a going concern against the possibility that reorganization may permit managers to make suboptimal managerial decisions.\textsuperscript{27} The public policy implication of this analysis is that legal rules should be designed to minimize the social costs of these two welfare-reducing actions.

The related literature in financial economics has expanded this inquiry to consider welfare-reducing activities that managers of a financially troubled firm undertake in order to expropriate wealth from the firm’s stakeholders.\textsuperscript{28} This literature focuses on the conflicts of interest that naturally arise in resolving the Chapter 11 dilemma: the conflict between managers and security holders and the conflicts among different classes of security holders. Typically, this literature assumes that the firm’s management is an efficient agent for the firm’s stockholders, using its control of the firm to protect stockholder interests. Consequently, the discussion generally centers on the conflict between stockholders and bondholders.

Our empirical findings regarding the impact of bankruptcy reorganization on stockholder wealth, which we present in Part III, suggest that, in fact, managers are not efficient agents of stockholders in Chapter 11 proceedings. If, however, we view corporate management as the ultimate residual claimant, which it arguably is in a Chapter 11 proceeding, then the analysis of the management/bondholder conflict in the financial economics literature is nevertheless quite pertinent to our finding suggesting a management/security holder clash in Chapter 11. That is, while financial economists may have mis-specified the conflict that in fact arises in corporate bankruptcy reorganizations, the

\textsuperscript{25} Thus far in our discussion, and again later in Part III, we are careful to refer to Chapter 11 of the Bankruptcy Code, rather than the broader phenomenon of court-supervised reorganization, where we wish to make particular points comparing the Bankruptcy Reform Act of 1978 with prior law. The remainder of our discussion in this part deals generically with court-supervised reorganizations, which under existing law are of course the province of Chapter 11. Since this discussion does not require that we distinguish between existing and prior law, and since “Chapter 11” is generally thought of as synonymous with “court-supervised reorganization” in the current bankruptcy law regime, in this part we will use the terms more or less interchangeably. Accordingly, references to “Chapter 11” should here be regarded as generalized references to court-supervised reorganization.

\textsuperscript{26} See, e.g., sources cited supra note 11.

\textsuperscript{27} See, e.g., White, supra note 11, at 138-39.

means by which they imagine that managers extract wealth from bondholders for the benefit of stockholders may well be utilized by managers to expropriate for themselves the wealth of both bondholders and stockholders. We therefore draw from that literature in our analysis of the costs of court-supervised corporate reorganizations.

B. The Costs of Court-Supervised Corporate Reorganizations

The social costs of Chapter 11 proceedings are well known. Bankruptcy law encourages corporate managers to reorganize their firms under court supervision, which effectively invites them to create a net equity position for stockholders by overstating expected net cash flows and understating risk. While creditors may complain loudly in response, the Chapter 11 presumption in favor of reposing control of the debtor-in-possession in the hands of pre-bankruptcy management leaves creditors with too little influence over the reorganization process to protect themselves adequately against such tendencies.29 The costs of these suboptimal managerial decisions are a major component of the social costs of court-supervised corporate reorganizations.

Students of financial economics have long recognized the incentives of corporate managers (equity holders) to effect wealth transfers from bondholders by embracing value-decreasing operating strategies.30 Professors Jensen and Meckling refer to the reduction in social welfare created by such wealth transfers as the “agency costs of debt.”31 Professors Brealey and Myers label these the “costs of financial distress.”32 And Professors Smith and Warner attribute these costs to “asset substitution” (i.e., the substitution of risky for safe assets) and the problem of “underinvestment.”33 These costs largely result from one of two suboptimal managerial decisions: the acceptance of negative net present value projects or the rejection of positive net present value projects. In either case, social welfare is compromised.

Under certain circumstances corporate managers, assumed to be acting on behalf of equity holders, have an incentive to adopt increasingly risky investment/production strategies, leading, at the extreme, to the adoption of strategies having a negative net present value. Thus, the equity of a leveraged firm may be viewed as a call option whose value, other things being equal, increases with variability (risk).34 The underinvestment problem arises when equity holders

29. See, e.g., Laurence A. Weiss, Bankruptcy Resolution: Direct Costs and Violation of Priority Claims, 27 J. FIN. ECON. 285, 291-92 (1990) (noting restrictions on creditors in reorganization process); see also supra notes 6-10 and accompanying text.
30. See, e.g., Baird, A World Without Bankruptcy, supra note 11, at 184-86.
34. See infra note 89. Of course, with greater variability there is also a greater probability that the option will expire “out of the money.” But since the value of the option cannot fall below zero, the net effect of an increase in variability is an increase in the value of the option.
reject positive net present value projects simply because the benefits of such projects would accrue exclusively to the firm’s bondholders.  

If we think of “default” as the act by which equity holders relinquish all claims to their firm’s net cash flow, it is clear that equity holders have an incentive to generate the social costs discussed above only when they perceive that the firm is near default. Accordingly, we refer to these costs as “near-default” costs, by which we mean the social costs generated by suboptimal operating strategies that cause wealth transfers from bondholders and other corporate stakeholders and, ultimately, reduce social welfare.

C. The Perfect Markets Solution to the Chapter 11 Dilemma

Clearly the Chapter 11 dilemma evaporates in a world of perfect markets. If the capital market is perfect, and property rights are well defined, then the market value of a firm’s securities will precisely and accurately reflect the discounted net cash flows of its current and future investment/production decisions. Under such conditions, a creditor can easily write (and enforce) a contract with the debtor that permits the creditor to invoke default remedies should the firm’s value fall below the face value of its debt. As long as the value of the firm exceeds the face value of the debt, equity holders can always issue additional equity to forestall default. If the firm’s market value were to fall below that amount, bondholders could step in, take control of the firm, and then sell it to capital market participants. This “perfect markets solution” thus obviates the need for judicial intervention in the affairs of financially troubled corporations. The only role for courts would be their traditional function of enforcing property rights and contracts.

In this hypothetical world of perfect markets, valuable firm-specific capital could never be destroyed. If there were firm-specific assets with value in excess of the next-best alternative allocation, which might be piecemeal liquidation, the firm could raise money by issuing claims (securities) and thereby retain control of these assets. (This argument presumes the existence of an efficient, well-functioning market for corporate control. Thus, if the highest-valued allocation of the firm’s assets involves a change in control, by assumption appropriate agents would emerge to effect the necessary management change.

36. We may think of “bankruptcy costs” as the sum of these near-default costs and the deadweight costs of the bankruptcy process itself. See supra note 23.
38. In such an environment, with the courts’ role limited to the enforcement of property rights and contracts, the relevant property right is the right to control the allocation of the firm’s assets by accumulating a controlling interest in its outstanding equity shares.
From the opposite perspective, the only way in which firm-specific assets may be lost is if the firm is unable to convince the capital market of its true (higher) intrinsic value, which is an impossibility in a perfect-markets environment. Only then would there perhaps be an economic justification for a court to intervene and force a reorganization of the firm's capital structure, although even in a world of imperfect markets, it seems doubtful that courts have a comparative advantage over capital market agents in determining the intrinsic value of corporations and their equity claims.

Of course, the perfect markets solution that we posit is hardly a new theory, nor does it represent a unique application of standard principles of financial economics. It is, indeed, the foundation of most of the principles that comprise the Modern Theory of Finance, including the celebrated Modigliani and Miller Irrelevance Propositions. The relevance or applicability of the perfect markets solution to the real world depends on the efficiency of the pertinent real-world markets. Specifically, if the labor market, the capital market, the market for information, and the market for corporate control are efficient, then there is no economic justification for judicial interference in the contractual relationship between corporate creditors and debtors. Judicial intervention is warranted only if there are significant information asymmetries, transactions costs, or ambiguous property rights.

We now attempt to test certain empirical implications of the foregoing theoretical analysis. As we demonstrate in Part III, and as our discussion here would predict, the current corporate bankruptcy regime is indeed difficult to justify economically.


A. Overview

As we discussed in Part I, the 1978 Act made it significantly easier for firms to obtain court protection from creditors. Indeed, to many of its proponents, a principal purpose of the legislation was to curtail the inefficient liquidation of viable corporations and thereby preserve jobs and valuable firm-specific assets. Implicitly, the Act's proponents must also have believed that the benefits inherent in preserving such assets generally exceed the costs engendered by court-supervised reorganizations.

If these proponents were correct, or alternatively, if the 1978 Act improved the efficiency of the reorganization process, we would expect to observe relative wealth increases for both bondholders and stockholders under the 1978 Act. Thus, by comparing the experiences of security holders of firms in bankruptcy reorganization before and after the 1978 Act became effective, we can draw certain inferences regarding the welfare effects of court-supervised reorganizations. In this way, we can examine empirically the validity of the theoretical analysis of court-supervised reorganizations that we offered in Part II.

In this part, we attempt to measure empirically the social costs of the 1978 Act by examining the economic effects of that legislation. Our analysis proceeds in three stages, each of which compares data from two periods, pre-1980 and post-1979. We first examine the frequency of voluntary corporate bankruptcy filings before and after the Act to test our hypothesis that the Act made it easier to secure bankruptcy protection. Next we try to gauge the extent to which the financial conditions of bankrupt firms differ in the two periods, investigating whether, as our analysis suggests, the relaxed standards of the Act afforded to financially stronger firms the advantages of court-supervised reorganization. Finally, we examine directly (through several empirical tests) the experiences of security holders of firms filing bankruptcy petitions in the two periods, which allows us to determine whether bondholders and stockholders of bankrupt firms have fared better under the Act.

Table 1 summarizes our empirical design. In Equation (1) of our Empirical Model, we define the market value of the financial claims of a firm that is about to file a voluntary bankruptcy petition \( V \) as the difference between the value of the firm's potential earnings \( E \) and the costs of bankruptcy reorganization.

41. Some might argue that we should focus our attention on the point in time at which it became clear that the 1978 Act was going to be adopted. However, apart from the difficulty of identifying that point, there is reason to suspect that the Act had an imperceptible effect on the relative value of corporate debt and equity around the time the legislation was debated and ultimately passed. As we report below, filing a bankruptcy petition is an extreme rarity for firms listed on the major stock exchanges. See infra Table 2; text accompanying note 50. Consequently, the announcement of a bankruptcy filing (or the ripening of conditions that ultimately lead to one) is generally a "surprise" to the market. As a result, the only measurable effect of the 1978 Act would occur after a firm had been identified as one that is going to file a Chapter 11 petition. Put differently, the impact of the Act can only be measured by examining the value of the securities of firms that have a nontrivial probability of filing under Chapter 11. The only sample that is certain to have this characteristic is the sample of firms that actually filed a Chapter 11 petition. We do find evidence of a structural shift in the default premium on corporate debt around the time the 1978 Act was being debated. See infra Table 7. Our measure of this shift is the significant increase in the yield differential between long-term government bonds and a portfolio of corporate debt rated Baa. One can argue, therefore, in view of the observation in the preceding paragraph, that firms with outstanding debt rated Baa have a nontrivial probability of filing under Chapter 11 in the not-too-distant future.

42. Although the 1978 Act became effective on October 1, 1979, for convenience we treat January 1, 1980 as the Act's effective date. See infra note 48. Accordingly, we examine the effects of the Act's adoption by comparing data from two periods, pre-1980 and post-1979. Under the old Chandler Act, corporate bankruptcy petitions seeking debtor reorganizations were filed under either Chapter X or Chapter XI. See supra note 5 and accompanying text. Accordingly, for years prior to 1980, our data include filings under both such chapters. Post-1979 data, of course, include only filings under Chapter 11, which in the 1978 Act consolidated old Chapters X and XI. Throughout this part, we refer to pre-1980 Chapter X and Chapter XI filings, and post-1979 Chapter 11 filings, as "bankruptcy petitions" or "bankruptcy filings."
zation (C). (Recall that we previously defined the costs of bankruptcy reorganization as the sum of near-default costs and the deadweight costs of bankruptcy itself.\textsuperscript{43} Equation (2) isolates those bankruptcy costs (C), and Equation (3) defines the total (social) costs of bankruptcy reorganization (T) as the product of such costs and the frequency of bankruptcy filings (F). Equation (4) simply restates Equation (3) with the appropriate substitution of \( E-V \) for \( C \), from Equation (2). Finally, Equation (5) introduces a difference operator (\( \Delta \)), which represents the change in value of the indicated variable from the pre-Act to the post-Act period.

**Table 1. Empirical Design**

- **Definitions**
  - \( V \) = Market Value of Financial Claims
  - \( E \) = Earnings Potential
  - \( C \) = Costs of Voluntary Bankruptcy
  - \( F \) = Filing Frequency
  - \( T \) = Total (Social) Costs of Voluntary Bankruptcy
  - \( \Delta \) = Difference Operator: (Post Act) - (Pre Act)

- **Empirical Model**
  
  \[
  \begin{align*}
  V &= E - C \\
  C &= E - V \\
  T &= F \times C \\
  T &= F \times [E - V] \\
  \Delta T &= \Delta F \times [E - V] + F \times [\Delta E - \Delta V]
  \end{align*}
  \]

Equation (5) succinctly describes our empirical exercise, in that it reflects the impact of the 1978 Act on the social costs of corporate bankruptcy reorganization. Thus, in order to determine whether the Act increased or decreased such costs, one need only determine whether \( \Delta T \) in Equation (5) is positive or negative. Our empirical tests, by revealing whether each of \( \Delta F \), \( \Delta E \), and \( \Delta V \) is positive or negative, are designed to that end.\textsuperscript{44}

\textsuperscript{43} See supra note 36.

\textsuperscript{44} Obviously, this formulation ignores the effect of the Act on the welfare of other corporate stakeholders, such as employees, customers, suppliers, and communities. In this respect, the scope of our analysis is of course limited.

While others have persuasively defended the appropriateness of thus limiting an examination of corporate bankruptcy's social costs, see, e.g., Douglas G. Baird, *Loss Distribution, Forum Shopping, and Bankruptcy: A Reply to Warren*, 54 U. Chi. L. Rev. 815 (1987), a word regarding other stakeholders is perhaps in order.

Effects on stakeholders such as employees, customers, suppliers, and communities are difficult to measure because (unlike stockholders and bondholders) they do not hold claims that trade in organized markets. Similarly, as compared with wealth-maximizing stockholders and bondholders, the welfare of some constituents—communities, for example—is less plausibly gauged by reference to quantitative tests. For these reasons, our empirical tests address only quantitatively measurable financial claims. See also *infra*
Our tests and findings may be summarized as follows. The frequency of bankruptcy filings has increased significantly since the passage of the 1978 Act. In other words, we find that $\Delta F$ is positive.

We perform three separate tests to determine whether $\Delta E$ is positive or negative. First, we look to the relation between the frequency of filing and the return to the market and find that there is no relation between the two after the Act, whereas before the Act there was a negative correlation between filings and the return to the market. Second, we examine the pre-filing earnings of bankrupt firms and find that firms filing bankruptcy petitions in the post-Act environment are stronger financially than their pre-Act counterparts. Third, we analyze delistings of bankrupt firms by the New York and American Stock Exchanges and find that (1) a decision by an exchange to delist a firm turns principally on the firm's financial condition, as evidenced by reported earnings and assets, so that delisting may be seen as a signal of weak financial condition, and (2) firms that ultimately filed bankruptcy petitions were more likely to be delisted prior to bankruptcy in the pre-Act period than post-Act. Taken together, these results suggest that the potential earnings of firms filing bankruptcy petitions in the post-Act period were significantly greater than those of firms filing in the earlier period (i.e., that $\Delta E$ is positive). More generally, under the 1978 Act, bankruptcy filings apparently are less a function of exogenous economic factors and more a function of firm-specific factors, such as management discretion, than during the pre-Act era.

To determine whether $\Delta V$ in Equation (5) is positive or negative, we directly examine the effect of the Act on security holder wealth. We find that both bondholders and stockholders have suffered significantly greater losses in the post-Act environment. We also find that bond ratings of firms about to file bankruptcy petitions are significantly lower and that default premiums on the debt of such firms are significantly higher in the post-Act period. Finally, we find that post-Act insiders sell significantly more of their holdings than do their pre-Act counterparts in the two years surrounding the filing of a bankruptcy petition. These results, taken together, suggest that $\Delta V$ is negative.

In sum, in terms of Equation (5), our empirical tests and findings show that in the post-Act environment the frequency of bankruptcy filings has increased ($\Delta F > 0$), the potential earnings of filing firms have increased ($\Delta E > 0$), and the market value of the financial claims of filing firms has decreased ($\Delta V <$

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Note 108: (discussing impact of our proposal on stakeholders other than stockholders and bondholders).

45. We recognize the irony, if not the error, of relying on accounting numbers instead of market values to assess a firm's earnings potential. But in the instant case, market values reflect too much information. As Equation (1) illustrates, the market value of the securities of a firm approaching bankruptcy will reflect both the firm's (reduced) earnings potential and the bankruptcy costs that the firm is about to incur. Clearly, whether one can say anything meaningful about the social costs of the 1978 Act ($\Delta T$) depends upon whether one can separate a change in bankruptcy costs ($\Delta C$) from a change in a filing firm's underlying financial condition ($\Delta E$). We focus on accounting numbers, rather than market values, in an effort to achieve that separation.
We therefore conclude that the social costs of bankruptcy (ΔT) have increased under the 1978 Act. Our empirical findings, in other words, cast strong doubt on the proposition that the more liberal use of bankruptcy reorganization occasioned by the Act has enhanced social welfare by preserving firm-specific capital and security holder wealth. We now turn to a detailed discussion of our findings.

B. Data Description

We performed empirical tests on two distinct data sets. The first, obtained from the Administrative Office of the United States Courts, comprises the total number of United States corporations filing bankruptcy petitions each year from 1962 through 1989. Due to the source, these data probably represent the universe of such firms.

The second data set consists of all firms that: (1) were listed on either the New York or American Stock Exchange (the NYSE or the AMEX) at some point between 1964 and 1989; and (2) filed a bankruptcy petition during the same period. The primary source for this information is The Wall Street Journal Index.

C. The Time Series of Bankruptcy Filings

Our analysis in Part I suggests that the number of bankruptcy filings should have increased under the 1978 Act. Our empirical findings are consistent with this prediction.

The time series of the number of United States firms filing bankruptcy petitions between 1962 and 1989 is plotted in Figure 1. This series reveals a dramatic increase in the frequency of filings after the 1978 Act became effective. In the 1960's annual filings averaged approximately 1,000. In the 1970's the number jumped to approximately 2,500, and in the 1980's the average number of filings was more than 17,000 per year. Clearly, the post-Act era is characterized by a significant increase in the number of U.S. corporations filing bankruptcy petitions.

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46. See supra note 42.
47. Our sample does not include firms that filed a petition before being listed, but does include firms that filed a petition after being delisted from the exchange.
48. See infra Table 2. Note that these data represent filings based on a July to June calendar year. Also, because of the presumed lag in implementing the provisions of the 1978 Act, our empirical analyses focus on filings before 1980 and those after 1979. Thus, although the legislation was adopted in 1978 and became effective on October 1, 1979, we conduct our tests and present our results by comparing the pre-1980 and post-1979 eras. See supra note 42.
We summarize the time series of total bankruptcy filings in Table 2, where we also report the number of firms listed on the New York and American Stock Exchanges and the number of these listed firms that filed bankruptcy petitions in our pre-Act and post-Act time periods. We also report the data by the three decades covered in our study.49

**TABLE 2. Mean Annual Number of U.S. Corporations Filing Bankruptcy Petitions (1964-89)**

<table>
<thead>
<tr>
<th>TIME PERIOD</th>
<th>TOTAL FILINGS</th>
<th>TOTAL FILINGS</th>
<th>PERCENT</th>
<th>% MARKET RETURN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Act (1964-79)</td>
<td>1,783</td>
<td>2,390</td>
<td>0.393</td>
<td>20.96</td>
</tr>
<tr>
<td>Post-Act (1980-89)</td>
<td>17,321</td>
<td>2,387</td>
<td>0.685</td>
<td>25.97</td>
</tr>
<tr>
<td>Difference</td>
<td>15,538</td>
<td>3</td>
<td>0.292</td>
<td>5.01</td>
</tr>
<tr>
<td>t-statistic</td>
<td>7.71</td>
<td>2.20</td>
<td>2.56</td>
<td>0.39</td>
</tr>
</tbody>
</table>

1964-69            | 995           | 2,153         | 0.068   | 26.43           |
1970-79            | 2,413         | 2,581         | 0.588   | 17.75           |
1980-89            | 17,321        | 2,387         | 0.685   | 25.97           |

Perhaps the most striking aspect of the data reported in Table 2 is how few listed firms filed petitions. Over the ten-year period 1980-1989, the average number of firms listed annually on the NYSE and AMEX was 2,387.50 Over the same period, there were only 162 listed firms that filed Chapter 11 petitions. This translates into slightly more than sixteen per year, or less than one percent

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49. We report the annual frequencies of these series in the Appendix in Table A.1, infra.
50. More precisely, the number of firms that were traded on the NYSE and AMEX at the end of June in the indicated year is reported.
of the total number of firms listed. The filing of a bankruptcy petition is plainly a rare event for a NYSE or AMEX firm, even in the post-Act environment.

Unlike the time series of total bankruptcy filings, the series for listed firms displays no dramatic jump after 1979. However, the average number of filings for listed firms does increase from ten per year before 1979 to more than sixteen in the ten years thereafter,\(^1\) and this difference is statistically significant.\(^2\)

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1. It should be noted that the difference between the two periods for listed firms is the result of the extremely low frequency of bankruptcies of such firms in the 1960's. As reported at the bottom of Table 2, there were only 1.5 bankruptcies per year for listed firms in the period 1964 through 1969. Thus, while the number of bankruptcies of listed firms in the 1980's exceeded the number in the 1970's, this difference is not statistically significant. This observation, of course, does not diminish the significance of our findings regarding the overall frequency of bankruptcy filings.

2. Throughout this part we report the results of various empirical tests and indicate whether these results are "statistically significant." For those readers who are not familiar with statistical hypothesis testing, we offer the following, oversimplified explanation. A more complete discussion of hypothesis testing can be found in JAN KAMENTA, ELEMENTS OF ECONOMETRICS (1971).

Hypothesis testing involves the use of sample test statistics to make inferences regarding underlying population parameters. If we had data on all firms that ever filed Chapter 11 petitions (the so-called population), we could simply observe the data of interest to us and draw appropriate conclusions, without having to rely on statistical inferences. Since it is usually impossible to gather data on an entire population, however, we must generally rely on inferences that are based on sample statistics. For example, we have collected data on the security returns to a sample of Chapter 11 firms. Based on the values of the various test statistics that we calculate from the sample, we infer the values of the corresponding population parameters. Thus, we calculate the mean (average) return to the stockholders of the firms in our sample. Based on this estimate, and its corresponding t-statistic, we draw some inference regarding the (true) value of the underlying (population) parameter, which is the true return to the stockholders of all firms filing Chapter 11 petitions.

Most empirical tests involve the determination of whether a certain estimate, usually a mean or a difference between two means, is significantly different from zero. In order to make this determination, we focus on the so-called t-statistic. Formally, a t-statistic is the ratio of an estimate to the standard error of the estimate. The intuition underlying this ratio is that all estimates necessarily include an estimation error. Thus, we may calculate a mean to be equal to 5.0 and are interested in whether this mean is significantly different from zero. Now, of course, if every observation in the sample is exactly equal to 5, then there is no estimation error: the mean is 5, and 5 is greater than 0. In general, however, there will be a distribution of values across the observations in a sample. Some, approximately half, will be greater than 5, while others, again approximately half, will be less than 5. The question to be addressed, therefore, given the underlying distribution or range in the sample values, is whether a mean of 5 is statistically different from zero. The value of the t-statistic provides guidance in answering this question.

The hypothesis that is being tested is referred to as the null hypothesis, because that implies that there is no difference between the underlying parameter value and zero. Specifying the alternative hypothesis depends on the nature of the test and one's prior expectations regarding the true value of the parameter. If one has no underlying theory or ex ante expectations regarding the value of the parameter being estimated, then the alternative hypothesis is simply that the true value is not zero. However, if there is some underlying theory that predicts a particular sign of the value of the population, then one can formulate a stronger alternative hypothesis.

Most of our empirical tests involve comparisons between the means of a certain variable in the pre-Act and post-Act samples. Our theoretical analysis guides the specification of the appropriate alternative hypothesis. For example, our theory predicts that in the post-Act period, the frequency of bankruptcy filings increased, the financial condition of filing firms improved, and the gains to stockholders decreased. Specifying the (expected) sign of the underlying parameter value determines the critical value of the t-statistic, which is the minimum value required to reject the null hypothesis.

As empiricists, we must decide how willing we are to make an error by concluding that an estimate is different from zero (and therefore rejecting the null hypothesis) when in fact the "true" value is not. Typically, researchers set the limit of this error at 5%. Put differently, researchers typically place a "95% confidence interval" around their estimates. The critical value of the t-statistic at this level of confidence is 1.65. A confidence interval of 99% (setting the limit of estimation error at 1%) would correspond to a critical t-statistic of 2.33, and a confidence level of 90% would correspond to a critical t-statistic of 1.28.
The column labeled "% Market Return" in Table 2 reports the average annual return to the CRSP Equally Weighted Market Portfolio.\textsuperscript{53} The return on this portfolio is a measure of average stock performance, similar to the familiar Dow Jones Industrial Average. Inspection of this series allows us to determine whether the post-Act increase in bankruptcy filings can be attributed to a serious downturn in the economy.

The average annual returns to the CRSP portfolio reveal no significant post-Act reduction in the value of corporate America. In fact, notwithstanding the enormous increase in bankruptcy filings, post-Act growth in stock values was greater than in the earlier period. The average of the simple annual returns is 20.96% in the first period and 25.97% in the latter. These data cast serious doubt on the notion that the post-Act increase in bankruptcy filings may be attributed to a general deterioration in the financial condition of United States firms. Indeed, data we now consider show that while the number of bankruptcy filings is negatively related to the performance of the market in the pre-Act period, this relation does not hold in the later period.

Tables 3.A and 3.B report the results of a time-series analysis of the frequency of bankruptcy filings. The dependent variable in the regressions reported in Table 3.A is the annual number of total filings (Column 1 of Table A.1 in the Appendix). The regressions reported in Table 3.B are based on the number of listed firms filing bankruptcy petitions (Column 5 of Table A.1 in the Appendix).

The results reported in the first row of Table 3.A show that over the sixteen-year period 1964-1979, the annual number of bankruptcy filings is significantly negatively related to the return on the market portfolio in the previous year. Thus, as might be expected, a poor stock market in one year leads to an increase in the number of filings the following year. The data indicate that for every one percent decline in the return to the market portfolio, there will be approximately thirteen more bankruptcy filings over the next year.

To illustrate, we calculate the sample means of the returns earned by the stockholders of firms filing bankruptcy petitions in the two periods. Based on these means, we calculate a difference. The null hypothesis is that the true (underlying) value of this difference is zero. Our alternative hypothesis is that stockholder returns are significantly lower post-Act than pre-Act, reflecting an increase in bankruptcy costs. Thus, if the t-statistic of this difference in means is greater than 1.28, 1.65, or 2.33, we can be, respectively, "90% confident," "95% confident," or "99% confident" that the true value of the mean is not zero. (Actually, in classical hypothesis testing, the level of the confidence interval (99%, 95%, or 90%) should be specified before the sample statistic is calculated.) Observing a t-statistic in excess of these values leads us to reject the null hypothesis and to conclude that the alternative hypothesis (that the returns are lower for stockholders in the post-Act period) is correct. If instead the t-statistic were less than 1.28, we could not reject the null hypothesis.

\textsuperscript{53} These data come from the University of Chicago Center for Research in Security Prices (CRSP). This data base includes the daily returns to all firms listed on the NYSE and AMEX since July 1962 and is the primary source for all empirical work done on common stock returns in the academic literature.
The regression results also indicate that the number of filings is positively related to the number of filings in the previous year.\(^{54}\)

**TABLE 3.A. Regression of the Annual Number of Bankruptcy Filings on the Return to the Market Portfolio and the Number of Bankruptcy Filings in the Previous Year**

(t-statistics in parentheses)

<table>
<thead>
<tr>
<th>TIME PERIOD</th>
<th>NUMBER OF YEARS</th>
<th>CONSTANT</th>
<th>PREVIOUS YEAR'S RETURN</th>
<th>PREVIOUS YEAR'S FILINGS</th>
<th>ADJ. R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>1964-79</td>
<td>16</td>
<td>323</td>
<td>-12.80</td>
<td>1.04</td>
<td>0.91</td>
</tr>
<tr>
<td></td>
<td>(2.00)</td>
<td>(-4.37)</td>
<td>(12.2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1980-89</td>
<td>10</td>
<td>6230</td>
<td>-22.14</td>
<td>0.74</td>
<td>0.76</td>
</tr>
<tr>
<td></td>
<td>(2.57)</td>
<td>(-0.72)</td>
<td>(5.51)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TABLE 3.B. Regression of the Annual Percent of Listed Firms Filing Bankruptcy Petitions on the Return to the Market Portfolio and the Percent of Listed Firms Filing in the Previous Year**

(t-statistics in parentheses)

<table>
<thead>
<tr>
<th>TIME PERIOD</th>
<th>NUMBER OF YEARS</th>
<th>CONSTANT</th>
<th>PREVIOUS YEAR'S RETURN</th>
<th>PREVIOUS YEAR'S % OF LISTED FIRMS</th>
<th>ADJ. R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>1965-79</td>
<td>15</td>
<td>0.21</td>
<td>-0.003</td>
<td>0.74</td>
<td>0.58</td>
</tr>
<tr>
<td></td>
<td>(2.52)</td>
<td>(-1.97)</td>
<td>(4.46)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1980-89</td>
<td>10</td>
<td>0.55</td>
<td>-0.001</td>
<td>0.23</td>
<td>-0.21</td>
</tr>
<tr>
<td></td>
<td>(1.87)</td>
<td>(0.26)</td>
<td>(0.62)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The data in the second row of Table 3.A report the results of a time-series analysis over the post-Act period. Two aspects of these results are noteworthy. The first is the more than twentyfold increase in the estimated constant as compared to the estimate over the earlier period. Clearly, the average (annual) number of bankruptcy filings is significantly higher in the more recent period.

The second noteworthy aspect of these results is the lack of a significant relation between bankruptcy filings in a given year and the return to the market in the previous year. Recall that this relation is negative and significant in the earlier period. The insignificance of this relation suggests that filing a bankruptcy petition in the post-Act period is less a consequence of "financial difficulties" (an exogenous event) than in the earlier period. This result is consistent with our assertion that a bankruptcy filing is a more endogenous event in the post-Act Chapter 11 environment.\(^{55}\)

\(^{54}\) The adjusted R\(^2\) reported in Table 3.A is 0.91 and indicates that 91% of the variation in the number of filings is "explained" by the regression model.

\(^{55}\) Note the R\(^2\) (0.76).
The data in Table 3.B report the results of identical tests performed on our sample of listed firms. The results of these tests are remarkably similar to those for the aggregate data. Thus, in the pre-Act period, the number of listed firms filing in a given year is negatively related to the market return and positively related to the annual number of filings in the previous year. These relations are statistically significant.\textsuperscript{56} As is the case for the aggregate sample, however, there is no (lagged) relation between the number of filings and the return to the market in the post-Act period.\textsuperscript{57} These results further support our claim regarding the endogeneity of the Chapter 11 decision.

D. The Financial Condition of Firms Filing Bankruptcy Petitions

We just noted that bankruptcy filings are less related to general economic conditions under the 1978 Act than they were previously. Before 1980, a downturn in the stock market reliably signaled an increase in bankruptcy filings in the coming year, while there is no such relation between market conditions and bankruptcy filings in the post-Act environment. In this section we show, similarly, that bankrupt firms are significantly stronger financially in the post-Act environment than previously. Our results suggest that the significant increase in the frequency of bankruptcy filings under the 1978 Act should not be attributed to any general deterioration in the financial strength of corporate America.

1. Returns on Assets

Table 4 reports the mean accounting rate of return on assets (defined as net income divided by the (book) value of total assets) for the firms in our two subsamples, as reported on the COMPUSTAT data files.\textsuperscript{58} For each firm in our data base that is listed on the COMPUSTAT file, we calculate an abnormal return on assets (ROA) by subtracting from the firm’s ROA the average ROA on the COMPUSTAT file for the same year.

\textsuperscript{56} The $R^2$ in this regression indicates that 58% of the variation in the number of filings is explained by the model.

\textsuperscript{57} Note that the $R^2$ is actually negative, which indicates that the model is incapable of explaining any of the variation in the annual number of filings.

\textsuperscript{58} COMPUSTAT is the most frequently used and comprehensive data base of annual accounting numbers for large corporations. The data are compiled by Dow Jones & Company, Inc. and are made available to research institutions in machine-readable form.
The data reported in Table 4 suggest that bankrupt firms were weaker financially before the Act than after. Thus, while the firms in both periods realized significantly negative accounting returns, the returns are consistently lower in the earlier period. In each of the five years before filing, the mean abnormal return on assets is greater (i.e., less negative) for firms in the post-Act period, and the difference is statistically significant in three of the five years. The compound abnormal return from event year -5 through event year -1 is a significant 6% greater in the post-Act period.

59. It is important to note, however, that all of the mean, economy-wide adjusted returns on assets in Table 4 are significantly less than zero. Thus, as much as five years before filing, firms in both periods experienced significantly negative abnormal accounting returns.

60. Note that there are only 30 firms in the pre-Act sample that have complete data for the five-year period and 116 firms with complete data in the latter period. In Table A.2 in the Appendix, infra, we report and discuss data on the availability of information in the COMPUSTAT files.

Table 4 in the text also shows that in the year of filing and beyond, accounting returns are lower for firms in the post-Act period. While this seems at first to be inconsistent with our hypothesis that post-Act bankrupt firms are in relatively better financial condition, we believe that these data reflect management's actual stewardship of the firm in bankruptcy, rather than the firm's pre-filing earnings potential. As such, in view of management's incentive to undertake suboptimal investment/production strategies while in reorganization and its apparently increased latitude to do so in the post-Act environment, these results are
In order to assess further the relative financial conditions of the firms in the two time periods, we now turn to an examination of the frequency and timing of stock exchange delistings of firms filing bankruptcy petitions.

2. Delistings by the Major Exchanges

Table 5 reports the timing of delistings by the two exchanges of the shares of firms that ultimately filed a bankruptcy petition. The data are presented separately for the two time periods: pre-Act and post-Act. The entries in Row 1 reflect the total number of listed firms filing bankruptcy petitions during the indicated time period. Row 2 reports the number of firms that were listed at least 500 trading days (roughly two years) before delisting that filed petitions before December 31, 1989. Row 3 reports the number of firms delisted more than one year but less than two years before filing. Row 4 reports the number of firms delisted more than one week but less than one year before filing.

<table>
<thead>
<tr>
<th>ROW</th>
<th>DESCRIPTION</th>
<th>PRE-ACT</th>
<th>POST-ACT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Total number of firms filing bankruptcy petitions and previously listed on either the NYSE or AMEX</td>
<td>163</td>
<td>163</td>
</tr>
<tr>
<td>2.</td>
<td>Firms delisted more than two years before filing</td>
<td>20</td>
<td>21</td>
</tr>
<tr>
<td>3.</td>
<td>Firms delisted more than one year and less than two years before filing</td>
<td>12</td>
<td>4</td>
</tr>
<tr>
<td>4.</td>
<td>Firms delisted more than one week and less than one year before filing</td>
<td>64</td>
<td>21</td>
</tr>
<tr>
<td>5.</td>
<td>Firms listed one week before filing (percent of Row 1)</td>
<td>67 (41)</td>
<td>117 (72)</td>
</tr>
<tr>
<td>6.</td>
<td>Firms delisted between one week before and two weeks after filing (percent of Row 5)</td>
<td>36 (54)</td>
<td>53 (45)</td>
</tr>
<tr>
<td>7.</td>
<td>Firms listed two weeks after filing (percent of Row 1)</td>
<td>31 (19)</td>
<td>64 (30)</td>
</tr>
</tbody>
</table>

The data in Row 2 indicate that approximately the same number of firms were delisted up to two years (500 trading days) prior to filing in both periods. However, Rows 3 and 4 show that in the period beginning 499 trading days before filing, almost three times as many firms were delisted in the pre-Act period than in the post-Act period (76 versus 25). The data in Row 5 show that one week before filing, a much higher percentage of firms (72% versus 41%) were still listed in the later period.

We interpret delisting as a sign of weak financial condition; the major exchanges generally delist a company’s shares when the company falls below listing criteria that are designed to gauge the financial health of the firm. The hardly surprising. See supra notes 8, 9; Part II.B; see also text accompanying infra notes 76-77.
NYSE, for example, can delist a company’s shares if the aggregate market value of shares outstanding (excluding Treasury stock) is less than $8 million and average net income after taxes for the past three years is less than $600,000.61 Since the data in Table 5 indicate that firms ultimately filing bankruptcy petitions were much more likely to be delisted in the pre-Act period, it follows that bankrupt firms were more clearly financially troubled during that era. These data therefore lend further support to the view that the decision to file a bankruptcy petition has become more endogenous under Chapter 11.

Thus far our evidence indicates that there has been a significant increase in the frequency of bankruptcy filings under the 1978 Act, and that this increase is not due to a deteriorating economy or an increase in the number of firms that are in financial distress. These results indicate that after the Act, corporate bankruptcy became more endogenous and less a function of extrinsic economic factors.

To put this differently, bankrupt firms are in better financial condition under the Act than previously. One would expect, as a consequence of this relative strength, to find evidence that the 1978 Act benefited security holders, particularly given Congress’ avowed purpose of fashioning that legislation to promote the preservation of valuable firm-specific capital by liberalizing access to bankruptcy reorganization.62 We would therefore expect the capital loss

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61. NEW YORK STOCK EXCHANGE LISTED COMPANY MANUAL, SECTION 8—SUSPENSION AND DELISTING, reprinted in N.Y.S.E. Guide (CCH) ¶¶ 2560, 2565 (Sept. 1989). The American Stock Exchange explicitly rejects any “precise mathematical formula” for delisting, instead adopting discretionary standards such as the financial condition of a company appearing “unsatisfactory” or further dealings with the company being “inadvisable.” AMEX COMPANY GUIDE, PART 10—SUSPENSION AND DELISTING, reprinted in Am. Stock Ex. Guide (CCH) ¶¶ 10375-77 (Mar. 1991). Despite these discretionary standards, the AMEX has adopted certain nonbinding “guidelines” to which it normally will give “consideration” for delisting: stockholders equity of less than $2 million and operating losses in two of the last three years, stockholders equity of less than $4 million and operating or net losses in three of the last four years, or operating losses in each of the last five years. Id.

However, the apparent difference between the NYSE’s standard approach and the AMEX’s discretionary approach is somewhat misleading. The NYSE does maintain some flexibility regarding delisting. If management can persuade the exchange that it is working diligently to improve the company’s performance, it is not uncommon for a company’s shares to remain listed, even if the company no longer satisfies the exchange’s listing criteria. See, e.g., Diana B. Henriques, The N.Y.S.E.’s Fluid Standards, N.Y. TIMES, July 28, 1991, at C15.

While the formal delisting requirements of the NYSE have not changed over the three decades covered by our study, we should note that the Exchange has modified its post-filing delisting practices. Before 1984, a bankruptcy filing almost always resulted in delisting. After the Johns Manville bankruptcy filing in 1984, however, the exchange revised its practice to allow the continued listing of firms in Chapter 11. See Letter from George Sofianos, Senior Economist, NYSE, to Michael Bradley (Oct. 1, 1991) (on file with authors). Sofianos writes:

The wording of the NYSE delisting rules 499 and 500 [has] not changed, but the interpretation has. For example, the Manville corporation was bankrupt because of large outstanding lawsuit claims. The NYSE believed that a new agreement with the claimants would occur and Manville would return to its stature as a healthy company. Because of these unusual circumstances the NYSE allowed Manville to remain listed even though it had filed for bankruptcy.

Id. This change, of course, has no impact on our pre-filing delisting data or the conclusions derived therefrom.

62. See supra notes 2-4, 6-9 and accompanying text.
suffered by security holders of bankrupt firms to be smaller post-Act than pre-
Act.

In the two sections that follow, we examine the effects of bankruptcy filings on security holder wealth and find that, in fact, security holders of bankrupt firms have fared significantly worse under the 1978 Act. Despite the relative financial strength of post-Act bankrupt firms, both stockholders and bondholders of such firms have experienced significantly greater losses in the post-Act period. These results, we believe, suggest that the Act has increased management’s freedom to pursue self-interested operating strategies at the expense of the firm’s security holders. The 1978 Act, in other words, has weakened the ability of creditors to monitor management effectively, allowing managers more frequently to abandon value-maximizing strategies in favor of programs that maximize their own welfare.

E. The Effect of Bankruptcy Filings on Stockholder Wealth

In this section we examine the effect of a bankruptcy filing on the wealth of stockholders. Our analysis is based on the average Abnormal Return (AR) to the firms in our sample. We define the AR to each firm as the compounded return to the firm less the compounded return to the value-weighted market portfolio. Algebraically,

$$AR_t = \prod_{t_{TB}}^{t_E} (1+R_{it}) - \prod_{t_{TB}}^{t_E} (1+R_{m,t})$$

where

- $R_{i,t} = \text{return to shares of firm } i \text{ on day } t$
- $R_{m,t} = \text{return to the value-weighted market portfolio on day } t$
- $T_B = \text{beginning of the holding period}$
- $T_E = \text{end of the holding period}$

The AR is essentially the return to the stock of the firm less the return to the overall market. More specifically, the AR is the net position of a zero-investment portfolio formed by selling short the value-weighted market portfolio and investing the proceeds in the shares of the firm under investigation. Thus, if the AR is zero, then the rate of return to the shares of the firm under investigation was exactly the same as the return to the market. An AR of .25 means that the firm’s shares appreciated 25% more than the market, and an AR of -.25

indicates that the return to the market was 25% greater than the return to the firm's shares over the indicated holding period.

In Table A.3 in the Appendix, we report abnormal stockholder returns for eleven holding periods (nine pre-filing and two post-filing) ranging from four years before filing to six months after filing. We find that in eight of the nine pre-filing holding periods, the abnormal returns for post-Act firms are less than for pre-Act firms, and in four periods this difference is statistically significant.

Table 6 summarizes the impact of bankruptcy on stockholder wealth and reveals dramatically the extent to which stockholders have been hurt by the 1978 Act. The sample in Table 6 includes all listed firms that filed a bankruptcy petition. Returns for each firm are calculated from two years before filing through the earlier of the delisting date or twenty days after filing. As this table indicates, during the pre-Act era, stockholders of firms filing bankruptcy petitions lost a little more than $.50 per dollar invested over the stated period. Since the 1978 Act became effective, they lose on average almost all of their wealth over the same holding period. In terms of average dollar returns, stockholders in the latter period suffer a loss almost three times greater than the loss suffered by stockholders in the earlier period. This translates into a total loss for listed firms of almost $9 billion in the earlier period and more than $23 billion in the latter period. Thus, in some general sense, the effect of the Act was to decrease stockholder wealth in listed firms alone by more than $14 billion.

<table>
<thead>
<tr>
<th>TABLE 6. Mean Abnormal Percentage and Dollar Returns and Total Dollar Losses to the Stockholders of Firms Filing Bankruptcy Petitions</th>
</tr>
</thead>
<tbody>
<tr>
<td>[Dollar figures are stated in millions in 1989 constant dollars. Holding periods are from two years before filing to delisting, or 20 days after filing, whichever occurs first.]</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Number of firms</td>
</tr>
<tr>
<td>Percent Return</td>
</tr>
<tr>
<td>Dollar Return</td>
</tr>
<tr>
<td>Total dollar losses for period</td>
</tr>
</tbody>
</table>

As indicated by our empirical design, summarized in Table 1, there are two possible explanations for the greater losses suffered by stockholders in the later period. One is that firms that filed bankruptcy petitions in the later period may have been significantly more financially troubled prior to filing than were bankrupt firms in the pre-Act period. This interpretation, however, is inconsistent with the results we reported earlier in this part. Recall, first, that more firms filed petitions in the later period even though the economy grew at a greater rate than during the earlier period. Second, more firms were delisted.
prior to filing in the earlier period than under the Act. Third, the annual number of post-Act bankruptcy filings is less closely related to general economic conditions than is the annual number of pre-Act filings. Finally, bankrupt firms filing under the 1978 Act reported higher pre-filing net earnings than their pre-Act counterparts. Given these findings, we conclude that the greater stockholder losses in the post-Act period do not indicate that bankrupt firms were in worse shape prior to filing in that period than previously.

We embrace, instead, the second explanation for those greater losses: they result from the increased bankruptcy costs occasioned by the Act. Thus, we believe that the lower stockholder returns in the post-Act period reflect the stock market’s expectation that the reorganization process itself will exact greater losses under the 1978 Act than under prior law. Later we report findings on the bondholder wealth effects of bankruptcy filings that reflect a similar expectation in the bond market. We argue that these greater losses derive from management’s increased latitude under the 1978 Act to pursue suboptimal operating strategies during reorganization.

To summarize, stockholders of firms filing bankruptcy petitions realize a significantly greater loss in the post-Act environment than previously. Even though firms invoking bankruptcy protection have been financially stronger in the post-Act era than in the earlier period, stock price declines are steeper in the later period. Whatever the intentions of Congress in adopting the 1978 Act, the Act has not enhanced stockholder wealth. Having thus demonstrated that corporate stockholders were not the beneficiaries of that legislation, we turn to an examination of the bondholder wealth effects of the 1978 Act. As we discuss below, it appears that bondholders did not benefit from the Act either.

F. The Effect of Bankruptcy Filings on Bondholder Wealth

In order to assess the effect of the 1978 Act on the wealth of corporate bondholders, we perform two empirical tests. First, we test for a change in the default premium on corporate bonds in the post-Act era. A change from the pre-Act period in the yields of corporate bonds relative to the yields of risk-free government bonds would reflect the extent to which the Act altered the mar-

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64. See infra Part III.F.2.
65. Our findings regarding the losses realized by the equity holders of bankrupt firms in the pre-1980 period are consistent with those reported by Professors Clark and Weinstein. In a study of firms filing bankruptcy petitions between June 1938 and September 1979, they documented stockholder losses of approximately 50% in the three years prior to filing. They also reported losses of 30% in the month of filing. See Truman A. Clark & Mark I. Weinstein, The Behavior of the Common Stock of Bankrupt Firms, 38 J. Fin. 489 (1983).

Our findings are inconsistent with those reported by Professors Morse and Shaw, who found no difference in the wealth losses to stockholders before and after the effective date of the 1978 Act. See Dale Morse & Wayne Shaw, Investing in Bankrupt Firms, 43 J. Fin. 1193 (1988). Their post-Act sample, however, includes bankruptcy filings only through 1982. We believe our sample to be more representative of the post-Act losses realized by the stockholders of bankrupt firms.
ket's assessment of the costs imposed on bondholders by bankruptcy filings. Second, we examine directly the experiences of bondholders of firms that have filed bankruptcy petitions.

1. Changes in the Default Premium on Corporate Bonds

Table 7 reports the results of a time-series analysis of the default premiums on corporate bonds. Following standard finance convention, we define the default premium as the difference between the yield to low-grade corporate bonds (rated Baa) and the yield to long-term government bonds. Both bond portfolios have a twenty-year maturity. The data are taken from the Standard and Poor's Bond Guide and are monthly observations of annualized yields. The time period under study is from July 1962 through December 1987.

The data in Table 7 report the results of two regressions of the default premium. In each, the independent variable is a dummy variable that takes on the value of one if the observation is after January 1978, and zero if the observation is between July 1962 and December 1977. This formulation assumes that the implications of the 1978 Act became apparent to market participants by the beginning of 1978.

<table>
<thead>
<tr>
<th>ESTIMATION TECHNIQUE</th>
<th>CONSTANT</th>
<th>POST-1977 DUMMY</th>
<th>DURBIN-WATSON</th>
</tr>
</thead>
<tbody>
<tr>
<td>OLS(^a)</td>
<td>1.4223</td>
<td>0.7639</td>
<td>0.46</td>
</tr>
<tr>
<td>(22.28)</td>
<td>(7.49)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MLE (AR-3)(^b)</td>
<td>1.4810</td>
<td>0.5897</td>
<td>1.99</td>
</tr>
<tr>
<td>(9.09)</td>
<td>(2.47)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^a\) Ordinary Least Squares estimates.
\(^b\) Maximum Likelihood estimates (AR-3).

The first line in the table reports Ordinary Least Squares estimates. The regression results indicate that the default premium is significantly positive in the first period and that the default premium is significantly greater in the latter period. However, the low Durbin-Watson statistic indicates that the time series

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66. _Standard and Poor's Bond Guide_ is a monthly publication produced by the Standard and Poor's Corporation.
of the default premium is highly autoregressive,\(^67\) thus calling into question the estimated standard errors.

To account for the autoregressive property in the time series of the default premium, we fit an AR-3 Model\(^68\) to the data. The AR-3 model also suggests that the default premiums are higher under the 1978 Act. This model, however, is not conclusive due to other statistical factors.\(^69\)

The results reported in Table 7 suggest that the default premium on corporate bonds increased significantly in the wake of the 1978 Act. The point estimate increased by approximately 40%. This increase in the default premium is consistent with rational bondholders price-protecting against greater expected losses in the event of a Chapter 11 filing. It appears that corporate bondholders did not expect to benefit from the provisions of the Act. As we show in the next subsection, their expectations were not disappointed.

2. Bondholder Wealth Effects

In this subsection we examine the effect of a bankruptcy filing on the wealth of corporate bondholders. Out of our total sample of 326 firms, we were able to find sufficient data on the publicly-traded debt of 88. Several firms had more than one issue outstanding. In all we have 175 bonds issued by 88 firms.

We collected monthly prices on each issue from Moody's Bond Record\(^70\) from twelve months before through six months after the filing of the bankruptcy petition. We then calculated an Abnormal Return to each bond in a manner similar to the methodology we employed in examining the wealth effect for corporate stockholders. In calculating the Abnormal Return to bondholders, we used the return to Moody's Corporate Bond Index\(^71\) as the standard of comparison. Specifically, we substituted the monthly return to this index for the variable \(R_m\) in Equation (6).

We report our results in Table 8. The data there show that bondholders of bankrupt firms experience a significant capital loss in both of our periods, just

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\(^{67}\) An autoregressive process is one in which the current value of a variable is a function of its past values. Many macroeconomic time series are autoregressive, especially those relating to interest rates. A Durbin-Watson of 2.00 indicates zero (first order) autoregression. The Ordinary Least Squares regression shows a Durbin-Watson statistic of 0.46, which indicates a high level of autoregression.

\(^{68}\) An AR-3 model indicates that the default premium in the current period is statistically related to the default premiums in the past three periods.

\(^{69}\) While the third-order autoregression model reduces the residuals to white noise, the sum of the estimates of the three autoregression factors is greater than 1.0. This suggests that the time series of the default premium is nonstationary. If in fact the series is nonstationary, then we cannot ascribe any statistical significance to the greater default premium in the latter period. For example, if the series is a random walk, which the data suggest it might be, then the increase in the default premium cannot be ascribed to the 1978 Act. Put differently, with a random walk, virtually anything is possible, which is to say that the process generating the default premium could have produced a higher level in the latter period irrespective of the implications of the 1978 Act.

\(^{70}\) Moody's Bond Record is published monthly by Moody's Investors Service, Inc.

\(^{71}\) Moody's Corporate Bond Index is published monthly by Moody's Investors Service, Inc.
as we found for stockholders. But we also find, again similarly to our findings regarding stockholder wealth effects, that bondholders suffer significantly greater losses in the post-Act period than in the earlier period. Indeed, the loss suffered by bondholders is more than 28 percentage points greater in the later period. The t-statistic of this difference is -3.69. Like stockholders, corporate bondholders have not benefited from the adoption of the 1978 Act.72

### TABLE 8. Mean Percentage Abnormal Returns to the Bondholders of Firms Filing Bankruptcy Petitions

[The number of bonds in each sample is reported in brackets [x].]

<table>
<thead>
<tr>
<th>Holding Period</th>
<th>PRE-Act</th>
<th>POST-Act</th>
<th>Difference</th>
<th>T-Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>-11 to -6</td>
<td>-5.05</td>
<td>-18.07</td>
<td>-13.02</td>
<td>-1.89</td>
</tr>
<tr>
<td></td>
<td>[56]</td>
<td>[92]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-5 to -1</td>
<td>-13.52</td>
<td>-29.62</td>
<td>-16.10</td>
<td>-2.27</td>
</tr>
<tr>
<td></td>
<td>[55]</td>
<td>[92]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>-23.22</td>
<td>-18.40</td>
<td>4.82</td>
<td>0.95</td>
</tr>
<tr>
<td></td>
<td>[52]</td>
<td>[92]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 to 6</td>
<td>1.85</td>
<td>-13.64</td>
<td>-15.49</td>
<td>-1.25</td>
</tr>
<tr>
<td></td>
<td>[48]</td>
<td>[73]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-11 to 6b</td>
<td>-42.23</td>
<td>-70.66</td>
<td>-28.43</td>
<td>-3.69</td>
</tr>
<tr>
<td></td>
<td>[70]</td>
<td>[105]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Bond Rating

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>-12</td>
<td>5.12</td>
<td>6.25</td>
<td>1.13</td>
<td>4.10</td>
</tr>
<tr>
<td></td>
<td>[26]</td>
<td>[87]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-1</td>
<td>6.31</td>
<td>6.74</td>
<td>0.43</td>
<td>1.63</td>
</tr>
<tr>
<td></td>
<td>[36]</td>
<td>[70]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a Holding period returns over the indicated months, relative to the month of filing. The month of filing is holding period 0 in the table.

b Bonds are deleted from this sample if the first price is less than six months before filing or the last price is before the filing month. In general, the first price is twelve months before filing.

c Each bond is assigned a numerical ranking according to its Moody’s Bond Rating one month before filing. See supra note 72.

72. At the bottom of Table 8, we report the average ratings of the bonds in each sample one year and one month prior to filing. In order to compare the average ratings of the bonds in the two time periods, we assign each bond a numerical rating according to its Moody’s Bond Rating. The numerical rating ranges from a high of 1 (Moody’s Aaa) to a low of 9 (Moody’s C). A numerical rating of 6 corresponds to a Moody’s rating of B.

The results in Table 8 indicate that the bonds in the earlier period were of significantly higher quality than those in the latter period. This is consistent with the greater losses suffered by bondholders in the latter period. However, the difference in ratings for the two periods does not suggest that bankrupt firms in the post-Act period generally issued “junk bonds” while their pre-Act counterparts issued high-quality bonds. This is consistent with the data reported in Table 4, supra, which indicate that bankrupt firms are financially stronger (and therefore less likely to have to resort to junk bond financings) post-Act than previously. Thus, the bond rating data are consistent with our hypothesis that the increased frequency of bankruptcy filings under the 1978 Act cannot plausibly be attributed to a general deterioration in the financial condition of U.S. corporations since 1979. See supra Part III.D.
G. Insider Trading Activity In Firms Filing Bankruptcy Petitions

We have shown that both stockholders and bondholders of bankrupt firms suffer greater losses in the post-Act environment. We speculate, as a consequence, that the only beneficiaries of the 1978 Act have been lawyers, bankruptcy consultants (such as accountants and financial advisors) and corporate managers. In order to test this last claim, we examine the insider trading activity of firms that file bankruptcy petitions.

Presumably, managers have a comparative advantage in predicting the effect of a court-supervised reorganization on the value of their firm's securities. Thus, if the provisions of the Act actually protected the wealth of stockholders, we would expect to see fewer insider sales since 1979 in the period surrounding the filing of a bankruptcy petition. Alternatively, if we observe insiders selling their stock in the period around a filing, we can infer that managers expect the bankruptcy process to have an adverse effect on the value of their firm's equity.

To assess the trading activity of the managers of the firms in our study, we obtained data reflecting all transactions reported by insiders over the period 1974 through 1990. Table 9 reports the number of firms for which there was reported insider trading activity in the indicated period and the percentage of these observations that were net sales, that is, where total sales minus total purchases is positive. These data show that in the pre-Act sample there were 41 firms that had insider trades more than three years before filing. The data also show that in this period, insiders were net purchasers of their firms' shares (i.e., since only 34.15% of the observations were net sales, 65.85% were net purchases). During the same period in the post-Act environment, corporate insiders were net sellers. In fact, the data show that in the post-Act environment, insiders were net sellers in all of the reported time intervals. In the year preceding the filing of a bankruptcy petition, insiders in both time periods were significant net sellers of their firm's shares. However, only in the post-Act period are insiders significant net sellers in the year after filing.

73. Company insiders (officers, directors, and 10% stockholders) are required by Section 16(a) of the Securities Exchange Act of 1934, 15 U.S.C. § 78p (1988), to report to the Securities and Exchange Commission their purchases and sales of company stock. These reports are compiled by the Commission and are available on computer tape in machine-readable form. We thank Professor Nejat Seyhun of The University of Michigan for providing us with the computer software to read the tape furnished by the Commission.
The greater propensity of insiders to dispose of their stock in the post-Act period is better seen in Table 10. There we calculate the net volume (purchases minus sales) for each firm in our sample. We then aggregate these net volume figures for the pre- and post-Act subsamples.

Table 10. Net Volume (Purchases - Sales) of Insider Trading Activity in Firms Filing Bankruptcy Petitions

<table>
<thead>
<tr>
<th>TRADING INTERVAL</th>
<th>PRE-ACT</th>
<th>POST-ACT</th>
<th>DIFFERENCE</th>
<th>T-STATISTIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>-36 to -25</td>
<td>-2,415</td>
<td>2,481</td>
<td>4,896</td>
<td>0.51</td>
</tr>
<tr>
<td>12 to -1</td>
<td>-5,456</td>
<td>78</td>
<td>-153,586</td>
<td>-2.39</td>
</tr>
<tr>
<td>0 to 12</td>
<td>2,905</td>
<td>57</td>
<td>-153,586</td>
<td>-2.39</td>
</tr>
</tbody>
</table>

*Significantly different from 0
in the pre-Act period and significant net sellers in the latter period. These data clearly suggest that managers correctly understand the effect of a bankruptcy filing on the value of the firm's equity in the post-Act environment and take appropriate actions with respect to their own holdings.

H. The Survival Rate of Firms Filing Bankruptcy Petitions

One benefit that managers may have derived from the 1978 Act is the ability to prolong the life of the firm and extend their tenure as executives. Presumably, the longer managers can retain control of their firm, the greater the wealth they can extract from the firm's stakeholders. The data in Table 11 provide some weak evidence that the Act has in fact extended the tenure of corporate executives.74

In Table 11 we report the number of firms that remain in operation following the filing of a bankruptcy petition. In the pre-Act environment, 74.5% of filing firms were in operation two years after filing. In contrast, 83.3% of firms filing in the post-Act period were still operating after two years. Managers have presumably benefited from this increase in the survival rate of filing firms.

The data in Table 11 also indicate that the percentages of firms still operating four years after filing are not materially different in the two periods. This suggests that the higher survival rate in the latter period is short-lived. These data also indicate that the Act has not produced a significantly higher “success” rate in reorganizing firms that file bankruptcy petitions. Rather, it appears that the Act has only postponed the inevitable demise of many firms that file bankruptcy petitions.75

| Table 11. The Survivorship of Firms Filing Voluntary Bankruptcy Petitions |
|--------------------------------|-----------------|-----------------|
|                                | FILINGS | TWO YEARS | FOUR YEARS |
|                                | IN OPERATION | AFTER FILING | AFTER FILING |
| Pre-Act                        | 157     | 117 (74.5%) | 93 (59.2%) |
| Post-Act                       | 162     | 135 (83.3%) | 100 (61.7%) |

74. The main sources for the data in Table 11 are Standard & Poor's Register of Directors and Executives, Moody's Industrial Manual, and The Wall Street Journal Index. Firms excluded by all three of these publications at a particular time were considered to no longer be in operation.

75. See also Robert K. Rasmussen, The Efficiency of Chapter 11, 8 BANKR. DEV. J. 319, 322 (1991) ("At best only one-fourth of companies that file chapter 11 ever emerge from bankruptcy."); E. Flynn, Statistical Analysis of Chapter 11, at 10-11 (1989) (unpublished manuscript, prepared for Administrative Office of the United States Courts, on file with authors) estimating that for Chapter 11 cases filed after 1987, no more than 30% will result in confirmed reorganization plans and that, for cases filed prior to 1987, only 17% had resulted in confirmed plans as of July 1989.

1075
I. Summary and Interpretation of Empirical Results

In this part we have examined the empirical effects of the Bankruptcy Reform Act of 1978. Our findings indicate that there has been an overwhelming increase in the number of bankruptcy filings since this legislation became effective. Moreover, we find that this phenomenon cannot be attributed to a weakening of the economy or an increase in the number of financially troubled corporations. The financial condition of the typical firm filing a bankruptcy petition in the post-Act environment is significantly stronger than that of the typical firm filing before the Act. We conclude that under the Act, managerial discretion is more significant, and poor financial performance less significant, in determining whether a firm is likely to seek bankruptcy protection. Finally, we find that the probability of being delisted before a bankruptcy filing is three times greater in the pre-Act period. This is further evidence that the decision to file a bankruptcy petition has become more endogenous under the 1978 Act.

Our empirical results suggest that corporate security holders have not benefited from the provisions of the 1978 Act. Prior to the Act, stockholders of firms that filed bankruptcy petitions typically lost fifty cents on the dollar, risk-adjusted. Under the Act, stockholders lose almost all of their investments. This is a surprising finding, if a principal purpose of the Act was to preserve corporate assets by more effectively preventing the liquidation of economically viable corporations.

As might be expected, the Act has not helped corporate bondholders either. The default premium—the difference between the yield to Baa-rated corporate bonds and the yield to United States Treasury bonds—is almost a third greater in the post-Act period, reflecting the higher probability of a bankruptcy filing and the greater bondholder losses that are likely should one occur. The Abnormal Returns to bondholders from twelve months before to six months after filing are significantly lower in the later period than previously.

The fact that both stockholders and bondholders have suffered under the 1978 Act leads us to conjecture that the Act's principal beneficiaries have been corporate managers. We believe that Chapter 11 has increased the latitude of corporate managers to abridge contracts and effectively breach their duties (be they fiduciary or contractual) to security holders while their firms are in reorganization. Chapter 11 allows, indeed encourages, managers to place their interests ahead of the interests of their security holders and to take actions that they could not take without court protection from creditor scrutiny. The 1978 Act thus provides managers with what amounts to a kind of defensive tactic against corporate debtholders. Filing a Chapter 11 petition, in effect, is a way to keep control of the firm free from the intrusive monitoring of creditors.\footnote{See 11 U.S.C. § 362(a)-(b) (1988 & Supp. II 1990) (providing for automatic stay of creditor claims).}
thereby permitting management to extract wealth from the firm's various security holders.\textsuperscript{77}

Recall that in our discussion of the Chapter 11 dilemma, in Part II, we noted that judicial intervention in the affairs of a financially troubled firm seems appropriate only if there are significant inefficiencies in the relevant markets for labor, capital, information, and corporate control.\textsuperscript{78} Our empirical findings indicate that a greater reliance on court-supervised reorganizations under the 1978 Act has not resulted in the preservation of valuable corporate assets. Rather, in view of our findings, it would appear, as noted above, that the Chapter 11 process effectively renders ambiguous the claims of corporate security holders, thereby allowing managers to abridge contractual agreements and violate their fiduciary duties. We believe, however, that one can fashion a proposal for reforming the law of corporate bankruptcy that would facilitate the preservation of valuable corporate assets by building on the perfect markets solution to the Chapter 11 dilemma.\textsuperscript{79} We conclude by presenting such a proposal.\textsuperscript{80}

\textsuperscript{77} See supra Part II.B. Professor Gilson reports that on average only 46\% of incumbent directors remain in office following a bankruptcy or debt restructuring, and concludes that corporate default leads to significant change in the allocation of control rights over corporate assets. Stuart C. Gilson, Bankruptcy, Boards, Banks, and Blockholders, 27 J. FIN. ECON. 355 (1990). While Gilson's findings appear at first blush to contradict our theory, we would argue that what matters is not the particular identity of the managers running the firm in bankruptcy reorganization, but rather the latitude (and incentive) these managers have under Chapter 11 to pursue suboptimal strategies. As we argue in Part II, the principal deficiency of the existing law of corporate bankruptcy is that it leaves corporate control for some period in the hands of actors who do not suffer the economic consequences of their actions. Professor Gilson's findings do not suggest otherwise.

Judge Easterbrook has argued, contrary to our claim, that corporate bankruptcy is efficient. Frank H. Easterbrook, Is Corporate Bankruptcy Efficient?, 27 J. FIN. ECON. 411 (1990). He argues that corporate bankruptcy law survives as an "[e]nduring legal institution," and that such institutions "endure either because they are efficient or because they redistribute wealth to concentrated, politically effective interest groups." Id. at 413. Finding no redistributive effect, Judge Easterbrook asserts that efficiency is the likely explanation for the survival of the current bankruptcy regime. Id. at 413-14. In this part, however, we have documented that wealth transfers from stockholders and bondholders occur under Chapter 11, thereby challenging Judge Easterbrook's efficiency claim.

\textsuperscript{78} See supra Part I.I.C.

\textsuperscript{79} See supra Part I.I.C.

\textsuperscript{80} The ideal experiment for testing our hypotheses (and the desirability of the reform we propose) would be simply to repeal Chapter 11 and observe the resulting impact on the wealth of corporate stakeholders. Since that experiment is obviously unavailable, however, we are forced to devise other empirical tests of our claims. In view of the changes in the law of bankruptcy reorganization effected by the 1978 Act, one way to gauge the costs and benefits of court-supervised corporate reorganizations is to examine the economic effects of the Act. By studying empirical findings from corporate bankruptcies before and after the effective date of the Act, one can indirectly infer what the impact of repealing Chapter 11 might be.

Clearly, however, our tests are imperfect since they merely compare the experiences of stockholders and bondholders under Chapter 11 with earlier experiences under old Chapters X and XI. Strictly speaking, therefore, our data support repeal of Chapter 11 in favor of the previous Chandler Act regime, but not necessarily outright abolition of court-supervised corporate reorganization. In our view, however, reinstatement of the Chandler Act would be only a second-best solution; our economic analysis in Part II strongly suggests that the best solution would be to eliminate corporate bankruptcy reorganization entirely, in favor of our proposal.

Our data, of course, are also limited to public corporations. We therefore make no empirical case against Chapter 11 insofar as it applies to nonpublic corporations, nor could we make such a case given the impossibility of measuring privately-held corporate claims. Thus, one might conclude that our proposal...
IV. A PROPOSAL FOR REFORM

A. Overview

In Part I, we argued that under the Bankruptcy Reform Act of 1978, corporate bankruptcy is appropriately viewed as an increasingly endogenous event. In Part II, we suggested that existing bankruptcy rules encourage corporate managers to reorganize under Chapter 11 when liquidation might make more sense economically, thus generating significant bankruptcy and near-default costs. Judicially-supervised corporate reorganization imposes on society the expense of compensating those responsible for reorganization plans (judges, lawyers, accountants, and financial advisers) and more than likely produces plans that seriously undermine allocative efficiency. Part III offered empirical evidence supporting our arguments.

While others have made similar observations, nobody has yet embraced what we regard as the logical conclusion to which these observations and our claim regarding the increased endogeneity of the Chapter 11 decision lead: Chapter 11 should be repealed, abolishing court-supervised corporate reorganizations and, in effect, precluding residual claimants from participating in any reorganization of the firm. More technically, we propose a federal law repealing Chapter 11 (insofar as it applies to corporate reorganizations) and providing for automatic cancellation of residual claims in the event of default. This law would leave the relative rankings of claims and the definition of default to contracts (including provisions in the company’s charter specifying the rights and priorities of its capital stock) between the company and its claimholders. This repeal of Chapter 11 would permit corporate claimants to enforce these contracts strictly in the event of default, since the law would no longer provide for a stay of enforcement actions in that event. We would expect companies and their claimants to tailor their agreements to this world of strictly enforceable, default-contingent contracts. As we elaborate later, the likely result would to abolish court-supervised corporate reorganization should be limited to public companies, especially since the separation of ownership from control that characterizes public companies is often absent (or at least less pronounced) in private firms.

Nevertheless, our theoretical analysis of corporate reorganization, particularly our discussion of management-creditor conflicts, arguably applies with equal force to private companies. See supra Part I.B. Even if management-shareholder interests may be more closely aligned in such companies, it would therefore appear that private company managers, like their public company counterparts, can operate in Chapter 11 without the creditor scrutiny that would otherwise constrain their freedom to pursue suboptimal strategies. See supra text accompanying note 29. In our view, consequently, the challenge to those who would limit our proposal to public companies is to demonstrate why one should conclude that data on private companies, if available, would differ significantly from the results we report. See also infra note 87 (discussing assumption of capital market efficiency).

81. See, e.g., JACKSON, supra note 11; Baird, A World Without Bankruptcy, supra note 11; Roe, supra note 11.

be contracts that differ significantly from those written under the current legal regime.  

In this part, we describe a model based on our proposal to repeal Chapter 11 and discuss how managers and corporate claimholders might be expected to adapt their behavior to a world without corporate bankruptcy reorganization.

B. A Proposed Model for a World Without Corporate Bankruptcy Reorganization

Consider a firm with three classes of securities outstanding: senior debt, junior debt, and common equity. The terms of the securities stipulate that in the event of liquidation, absolute priority will be maintained in that senior creditors will be paid in full before junior creditors receive anything. Likewise, the firm’s junior creditors must be paid in full before equity holders receive any payment.

For reasons explained below, we assume that when the two debt instruments were created, each class received what we term “contingent equity shares.” For example, if the senior debt issue had been one million dollars, then the firm would have issued one million contingent equity shares and distributed them to each of the senior bondholders in proportion to their respective purchases of senior debt. Similarly, we assume that the firm separately issued a second class of contingent equity shares to the junior creditors in proportion to their respective holdings of junior debt.

For the sake of simplicity, we assume a two-period model in which both debt issues mature in the next period. We also assume that the firm’s ongoing investment/production strategy is fixed and will come to fruition next period. Thus, at the end of the next period, the firm’s output and assets will be sold (liquidated), and the firm’s security holders will be paid in accordance with absolute priority.

Finally, we assume that in the current period, the firm owes senior creditors an interest payment of $I. Under existing law, the firm’s managers have the option of defaulting on the firm’s promise to pay senior creditors and seeking court-supervised reorganization under Chapter 11 of the Bankruptcy Code. As discussed above, management may have powerful incentives to choose the Chapter 11 option. Under our proposal, however, if the firm defaults rather than pay the $I owed to senior creditors, the equity holders will relinquish their status as residual claimants and therefore lose all claims to the firm’s assets, including the next period’s net cash flow.  

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83. See infra notes 94, 98; text accompanying infra note 95; infra Part IV.C.
84. See supra Part II.
85. Since our proposal would abolish court-supervised reorganization, management would no longer be able to remain in control of a firm’s assets without answering to the firm’s residual claimants. Thus, while management of the debtor-in-possession under Chapter 11 is effectively responsible to the bankruptcy court, our proposal would preserve management’s responsibility to the residual claimants (typically the equity
The immediate problem confronting management under our proposal is to determine the value of the firm’s equity. Modern finance theory offers a number of techniques for valuing the equity position in a leveraged firm. Perhaps the most elegant derives from the original option pricing model developed by Black and Scholes. We employ a variant of their analysis here.

We assume, again in the interest of simplicity, that investors are risk-neutral. We also ignore the time value of money and assume that, based on its current investment/production strategy, the firm has a discrete, random, terminal value of at least zero (as a consequence of limited liability) and a known maximum potential value. Finally, we assume that market participants become aware of the full extent of the distribution of possible firm values in the current period. Under these conditions, and assuming the equity holders pay $I, the market value of their equity can be written as:

\[ E = \sum_{V = B_s + B_j}^{V^*} [V - (B_s + B_j)] \cdot P(V) \]  

where
- \( E \) = market value of the firm’s equity after $I has been paid to the senior bondholders
- \( V \) = terminal value of the firm
- \( V^* \) = highest possible terminal value of the firm
- \( B_s \) = amount promised the senior bondholders in the terminal period
- \( B_j \) = amount promised the junior bondholders in the terminal period
- \( B_s + B_j^+ \) = smallest terminal value of the firm that satisfies the condition \( V > B_s + B_j \)
- \( P(V) \) = discrete probability distribution of the terminal value of the firm

Equation (7) reflects our stipulated rule of absolute priority in that equity holders receive payment only if the terminal value of the firm exceeds the aggregate amount owed to the junior and senior debtholders, i.e., \( V > [B_s + B_j] \). Note that \( E \) will be positive as long as \( V^* \), the maximum possible terminal value of the firm, is greater than the aggregate amount promised creditors \( (B_s + B_j) \). We refer to \( E \) as the value of the equity holders’ residual claim.

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holders) who elect them. We therefore assume throughout this discussion that, under our proposal, management would generally act on behalf of the firm’s residual claimants. Accordingly, in this part we sometimes discuss the incentives of managers and residual claimants interchangeably, recognizing that our model would permit residual claimants to replace management at any time.

This feature of our proposal—a realignment of management’s incentives that ensures that those in control of the firm would suffer the consequences and enjoy the benefits of their decisions—is centrally important for achieving more efficient resource allocations, since it would effectively reassign the right to control those resources to those with the strongest incentive to accomplish such allocations.

Assuming an efficient capital market,87 it follows that the firm’s managers can and will issue additional equity to pay the senior creditors if \( E > I \). Alternatively, if \( E < I \), the managers will default, and under our proposal the equity holders will relinquish all claims to the terminal value of the firm.

It is important to recognize that under current law, as long as there is a positive probability that the terminal value of the firm will exceed \( I + B_0 + B_J \), management has an incentive to invoke Chapter 11 protection to defer payment on the \$I \) owed to the firm’s senior creditors in the current period. Indeed, as we argued in Part II, the firm has an incentive to secure court protection and to alter its investment/production decisions to **insure** a positive probability that the firm’s terminal value will exceed the aggregate amount owed creditors. (And to the extent that bankruptcy courts generally scale back creditor claims, the incentive to seek such protection is even greater.)

In effect, the managers (whom we assume to be acting on behalf of the company’s equity holders88) of a leveraged firm have an “option” to pay the firm’s senior creditors today for a residual claim to the firm’s terminal value. The managers will “exercise”89 this option only if the present value of the residual claim exceeds the amount owed to the firm’s senior creditors in the


We also assume, relatedly, an active market for the residual claims to a firm’s assets. In view of these assumptions, some would argue that our proposal is necessarily limited to relatively large, publicly-held companies. Given that such companies control a disproportionately vast percentage of all corporate resources, so limiting our proposal would hardly diminish its significance as a source of improved efficiency. Nevertheless, we believe that our proposal need not be so limited. First, it has become clear in recent years that smaller (and even privately-held) bankrupt companies are closely followed by increasing numbers of highly sophisticated investors. There is an active market for the securities of firms in bankruptcy reorganization, and so-called “bottom fishers” such as R.D. Smith & Company, Feshbach Brothers and Whitman Hefferman Rhein & Co., Inc. have made millions of dollars in that market. See Jack Egan, Fishing for Good Deals, U.S. NEWS & WORLD REP., Sept. 24, 1990, at 82; John Egan, Powerless, FIN. WORLD, Mar. 19, 1991, at 41; Christopher Farrell, The Vulture Capitalists are Circling, BUS. WEEK, Sept. 5, 1988, at 84; Leo Fasciocco, The Feshbach Brothers Have Some Bad News: But to Them It’s Good, As Savvy Smart Sellers Gain When Trouble Swamps a Stack, INVESTOR’S DAILY, Feb. 21, 1990, at 1; Dianna B. Henriques, Troubled Times on Wall Street, N.Y. TIMES, Jan. 2, 1991, at D1. In view of these developments, there would appear to be sufficient market interest in financially distressed firms to make our proposal workable even for companies whose residual claims are less actively traded.

Second, our proposal would spur residual claimants to furnish the market with voluminous information regarding a firm’s value, lest those claimants be ousted from control because the market **incorrectly** values the firm. This response by residual claimants would arouse still greater market interest in financially troubled firms. In other words, our proposal would itself dramatically increase the efficiency of the securities markets for financially troubled companies, **whether or not** a firm’s stock is ordinarily actively traded.

Finally, it is worth noting that we also rely on the existence of a viable market for corporate control. See supra text accompanying notes 37-38; infra note 96.

88. See supra note 85.

89. The literature of financial economics has long recognized that common equity owners are like the owners of a call option. Just as the holder of a call option will decline to exercise the option if the exercise price exceeds the value of the underlying security, common stockholders will “exercise” their “option” to pay the firm’s senior creditors only if that exercise makes economic sense. See Bebchuk, supra note 11, at 780; Black & Scholes, supra note 86.
current period ($I$). In terms of our model, managers will make the current debt payment only when the following condition is satisfied:

\[ I < E \]  

Put simply, equity holders (or, more precisely, the managers who represent them) will default unless the amount currently due ($I$) is less than the value of the residual claim ($E$), which is equal to the expected terminal value of the firm ($V$) less the amount promised creditors, as illustrated by Equation (7).

Expression (8) defines the firm's equity position. If the condition stated in Expression (8) holds, then there is positive net equity in the firm and, assuming an efficient capital market, managers could issue new equity shares to finance the debt payments that are currently due. If Expression (8) does not hold, then there is no equity in the firm, and managers could not sell new equity to finance the current debt payments since, under these circumstances, no investor would pay a positive price for an additional residual claim to the firm's terminal value. The firm would therefore default on its senior debt obligation as a result of the market's assessment that there is no longer a net equity position in the firm. Thus, under our proposal the market rather than a bankruptcy court would determine whether there is a net equity position in the firm.

Suppose that the firm's management is unable to sell new equity in the market. Under such circumstances, management will have no choice but to default on its obligation to senior creditors, in which case the common stockholders will lose all claims to the firm's assets; for all intents and purposes, the firm's equity securities will "evaporate."

Under our proposal, the firm's junior debt will also "evaporate" in the event of default. In its place, the contingent equity owned by the junior debtholders will be "transformed" into the firm's new common equity securities. Put differently, default will oust the firm's equity holders from their position as residual claimants to the firm's cash flows and, in effect, substitute the junior debtholders as the new common stockholders.

The firm's junior bondholders would now face the problem of valuing the firm's new equity claims. Using the same analysis we offered above, if the original equity holders do not default on the promised payments to senior creditors, the value of the junior debt ($D_J$) can be written as:

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90. For this "option" analogy, we may think of $E$ (the value of the equity holders' residual claim) as the expected payoff upon exercise of the option and $I$ (the amount owed to senior creditors in the current period) as the cost of the option. The option "exercise price" is the sum $B_s + B_r$.

91. See supra note 87.
Chapter 11

\[ D_j = \sum_{v=B_s}^{B_s+D_j} (V-B_s)P(V) + \sum_{v=B_s+D_j}^{V} B_j P(V) \]  

(9)

Equation (9) reflects the absolute priority established by the firm's capital structure. For terminal values less than or equal to the amount owed senior creditors \(B_s\), the junior bondholders receive nothing. As reflected in the first expression in Equation (9), for terminal values between the amount owed the senior bondholders and the sum of that amount and the payment due junior bondholders, junior bondholders receive the value of the firm less the payment to senior bondholders. The second expression in Equation (9) captures the notion that for terminal values in excess of \(B_s + D_j\), the junior bondholders receive only their promised amount.

Should default occur, the value of the junior bondholders' claim to the terminal value of the firm (the new residual claim), \(D'_j\), is the sum of Equations (7) and (9).

\[ D'_j = D_j + E_{B_s,B_j} \sum_{v=B_s}^{V} (V-B_s)P(V) + \sum_{v=B_s+D_j}^{V} (V-B_s)P(V) \]  

(10)

The net value of the junior bondholders' position, of course, is \(D'_j - I\), where \(I\) is the amount owed senior creditors in the current period. Like the equity holders before them, junior creditors maintain their claims to the firm's terminal value only if they pay senior creditors $I today.\(^92\)

The increase in the value of the junior creditors' residual claim to the firm's terminal value is reflected by the difference in the second terms in each of Equations (9) and (10). As junior bondholders, the maximum terminal payoff they could receive would be \(B_s\). (See Equation (9).) As the firm's new residual claimants, however, the old junior bondholders may receive as much as \(V^* - B_s\). (See Equation (10).) For terminal values in excess of \(B_s + D_j\), it clearly follows that \((V - B_s) > B_j\).\(^93\)

Once the firm's junior debtholders effectively become the firm's new residual claimants, they will face the same choice that confronted the old common stockholders: they must either pay the obligation owed to the firm's

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92. And again, in terms of our "option" analogy, see supra notes 88-90 and accompanying text, \(I\) is the cost of the option held by the new residual claimants (the old junior bondholders) and \(D_j\) in Equation (10) is the expected payoff on exercise of the option.

93. While \(D'_j\) is strictly greater than \(D_j\), the difference between the two will always be less than the liability assumed by the junior bondholders upon default by the equity holders; the junior bondholders cannot retain the residual claim to the firm's terminal value without first paying senior creditors the amount currently due them. Thus, default by the equity holders will not make the junior bondholders better off.
senior creditors or default. Once again, the choice between these two alternatives will be made by capital market participants rather than by the new residual claimants, since financing a payment to the senior creditors will require the issuance of new equity securities.

We can generalize our model to contemplate a capital structure with several classes of securities outstanding, each with its own contingent equity shares. Under this system, when debt payments come due, management has the option of making the payment or defaulting. If the firm defaults, then the existing residual claimants give up all claims to the terminal value of the firm. Their claims would be extinguished and their residual claim status would pass to the next-higher priority security class. The contingent equity shares, for which we would expect claimholders to contract, would provide the mechanism by which this transfer of residual claim status would be accomplished.

This process of "passing" common equity rights "up through" the priority of the firm's securities would continue until one of two things happens: either the rights are passed up to the firm's senior creditors, or a class of security holders with lower priority is able to issue sufficient new equity to meet the obligations owed to the senior creditors. If the former event occurs, then the firm's senior creditors have the choice of running the firm and retaining the firm's equity position, selling its equity position to "outside" investors, or liquidating the firm's assets. If they chose either the second or third alternative, they would be paid and the equity position of the firm would be retained by the class of security holders who make the payment.

Recall that in our discrete-time model, we assume that the distribution of terminal values becomes known to market participants at the beginning of the current period. Based on this distribution, the firm's equity holders, and then its junior bondholders, can assess the value of their claims. However, our development of the model suggests, artificially, a step-by-step process for these value assessments, starting with the firm's equity holders and moving up the

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94. We anticipate under our proposal that contingent equity shares could also be issued to trade creditors, who of course enjoy the lowest priority among the firm's creditors. For ease of analysis, we have assumed a highly simplified capital structure. In the real world, a firm's capital structure is often considerably more complicated, and determining the relative rights and priorities of the firm's claimants may be more daunting than our discussion suggests. A critical feature of our proposal, however, is that each creditor would be able to bind the firm to strictly enforceable default-contingent contracts. See supra text accompanying note 82. Creditors would therefore have a strong incentive to negotiate contracts that would precisely clarify their respective rights and priorities and grant to each of them appropriate contingent equity shares. Creditors, fully aware of the consequences of their bargains, would thereby rank themselves inter se, however complicated the firm's capitalization. See also infra note 98.

95. See supra note 94.

96. We need not specify whether the firm's original managers would continue to run the firm throughout this entire process. As soon as the contingent equity claims of a class are transformed into common equity, that class can install any management team it chooses. Our proposal therefore encourages participants in the market for corporate control to participate in the "reorganization" process as well. See supra notes 37, 87. Nothing in our proposal prohibits a bidder from making a tender offer for the firm's equity (or debt, for that matter) at any stage of the process.
priority structure of the firm’s securities. In reality, of course, this process would be continuous. Thus, at every point in time, capital market agents would be evaluating the firm’s securities in light of the promised payments and the distribution of terminal values. Market participants would continually assess the firm’s need and ability to issue new shares to meet its debt obligations. If it became apparent that the firm (i.e., its equity holders) might not be able to issue new equity, the value of the existing equity would fall, as would the value of the firm’s outstanding debt securities. The value of the contingent equity shares held by the junior bondholders, however, would rise, in anticipation of the equity holders’ potential default.

An important feature of our proposal, distinct from others, is that it completely avoids judicial intervention. Under our proposal, there would be no “day of reckoning” and no need for a court-supervised sale or recapitalization of the firm. Rather, as the market learned more about the distribution of terminal values, the values of the firm’s securities and its contingent securities would adjust accordingly. Thus, the elimination of the firm’s equity holders and the erosion of their holdings would be a slow, orderly process.

In addition, our proposal would ensure adherence to the rule of absolute priority by precluding payments to junior claimants when senior claims are not fully paid. This would eliminate uncertainties currently associated with the reorganization process and thereby increase the utility of risk-averse investors, who would be willing to pay a premium for the certainty afforded by strict application of the absolute priority rule.

Our proposal would plainly reduce the inefficiencies associated with court-supervised corporate reorganizations. Most notably, the incentive that man-

97. Of course, the courts would retain their traditional role of enforcing property rights and contracts.
98. Because of this feature, our proposal would also obviate the need for an automatic stay, a feature of the existing Bankruptcy Code. See 11 U.S.C. §§ 362(a)-(b) (1988). Thus, under our proposal there would be little, if any, concern that nervous creditors would race one another to the courthouse in order to convert their claims into priority judgments against a firm on the verge of “failure.” See supra note 94 (noting treatment of trade creditors under our proposal). Put differently, while creditors would retain their state law rights to sue a corporate debtor in state court, see supra note 97, under our proposal we would expect creditor contracts to reflect both the enforceability of default-contingent provisions and the legal rule canceling the current residual claims, thereby effectively passing corporate control “up the priority ladder” upon default. As a consequence, such contracts would precisely define the relative rights and priorities of a firm’s creditors. In such a world, creditors would have little to gain from a race to the courthouse.

It is also worth noting that our proposal would in no way preclude debt restructurings prior to default. See generally Stuart C. Gilson et al., Troubled Debt Restructurings: An Empirical Study of Private Reorganisation of Firms in Default, 27 J. Fin. Econ. 315 (1990). Thus, although our proposal would significantly improve the bargaining position of creditors in such restructurings, managers would be free to renegotiate a firm’s outstanding debt obligations.
99. See supra note 13.
100. Security holders know that absolute priority may be violated in a Chapter 11 reorganization, but they cannot predict precisely the extent of such violations. Price protection against the potential loss from a bankruptcy filing is therefore incomplete.
101. We leave to one side the question whether operation of the firm under an independent trustee’s control might also accomplish this result. Cf. 11 U.S.C. § 721 (1988) (authorizing Chapter 7 trustee to operate business for a “limited period”).
agers have under existing law to abandon value-maximizing operating strategies and generate near-default costs would be eliminated, since the common equity holders would be ousted from control of the firm immediately upon the firm's default on its obligation to pay senior creditors. In addition, the costs of reorganization itself (i.e., judicial resources and legal, accounting, and financial advisory fees) obviously would be avoided.102

C. The Problem of Near-Default Costs

We should discuss, at least briefly, one possible objection to our proposal. While we claim that repeal of Chapter 11 would drastically reduce near-default costs, some might argue that the impact would be precisely the opposite, since disabling equity holders from participating in court-supervised reorganizations could induce managers to abandon optimal operating strategies (thereby generating near-default costs) well before any debt payment is actually due. (Indeed, a conventional justification for court-supervised reorganizations is that they reduce management's incentive to run the firm into the ground before default.) Relatedly, in describing our proposal we have assumed implicitly that managers have only one available strategy for raising the funds needed to pay senior debt obligations: the issuance of new equity. What our proposal omits, of course, is any mechanism whereby managers would be forced to raise funds through equity sales rather than through other undertakings, such as asset sales, risky (negative net present value) projects, and the like. To the extent that managers are free to select fundraising methods other than resort to the equity market, our proposal is problematic; managers might have an increased incentive to undertake suboptimal projects as the firm nears the default that, under our proposal, would extinguish the equity holders' claims against the company's

102. Some might criticize us for proposing to repeal Chapter 11 without completely addressing all of its asserted justifications. While extensive analysis of all of the purported benefits of court-supervised corporate bankruptcy reorganization is beyond the scope of this Article, we note that others have analyzed those benefits and concluded that the case for Chapter 11 is tenuous at best. Professor Bowers, for example, argues that Chapter 11 is unnecessary in view of the efficiency of state collection law. James W. Bowers, Whither What Hits the Fan? Murphy's Law, Bankruptcy Theory and the Elementary Economics of Loss Distribution, 26 GA. L. REV. (forthcoming Mar. 1992). Professor Picker, attacking the standard justification of bankruptcy reorganization law as a solution to a "common pool" problem among creditors, shows through game theory that the problem is better solved by adroit use of security interests. Randall Picker, Security Interests, Misbehavior, and the Common Pool, 59 U. CHI. L. REV. (forthcoming Spring 1992). Similarly, Professor Adler critically examines conventional justifications for Chapter 11 and concludes that there is simply no need for a law of corporate bankruptcy reorganization. Barry E. Adler, Bankruptcy and Risk Allocation, 77 CORNELL L. REV. (forthcoming Mar. 1992); see also JACKSON, supra note 11, ch. 9 (criticizing justifications for retaining Chapter 11); Baird, Uneasy Case, supra note 11; James W. Bowers, Groping and Coping in the Shadow of Murphy's Law: Bankruptcy Theory and the Elementary Economics of Failure, 88 MICH. L. REV. 2097 (1990) (arguing that bankruptcy does not necessarily produce optimal liquidations).

In view of the work of these scholars and the theoretical and empirical analyses that we offer, one can question whether there is any persuasive theory justifying Chapter 11 insofar as corporate bankruptcies are concerned. It seems to us that, at the very least, proponents of Chapter 11 ought to bear the burden of proving that it does more good than harm.
assets. In view of these considerations, one might legitimately ask whether our proposal simply illustrates an inevitable trade-off between improving the bankruptcy system's allocative efficiency and reducing near-default costs.\textsuperscript{103} In other words, would our proposal not only ignore, but perhaps even exacerbate, the problem of near-default costs?

We believe, upon reflection, that the increase in near-default costs that might be occasioned by our proposal is more apparent than real and that, as a consequence, there is no inevitable trade-off between improving allocative efficiency and reducing near-default costs. More specifically, we imagine that a market solution to this potential problem would evolve were our proposal adopted. If, as we propose, court-supervised reorganizations were outlawed and the law provided for cancellation of a firm's equity claims once a debt payment were missed, we would expect creditors to bargain for covenants pursuant to which debt obligations would be payable only from certain sources, and drastic changes in the firm's operating strategy would require creditor approval. These covenants almost certainly would be sufficiently restrictive to preclude a company from financing debt payments through extraordinary asset sales or other similar transactions. For example, creditors might well demand contractual provisions precluding the payment of debt obligations from sources other than current cash flows or the proceeds of equity sales.\textsuperscript{104} Such covenants would effectively restrict management's freedom, thereby limiting the near-default costs that could arise under our proposal. Moreover, although existing law permits bankrupt firms to reject their contractual obligations, including those contained in bond covenants, such an alternative would not be available to managers under our proposal. Thus, debtholders could strictly enforce the covenants that we imagine would prevent managers from generating near-default costs.\textsuperscript{105}

Recent developments in the credit markets strongly suggest that creditors are perfectly capable of bargaining for such protections. For example, to address creditor concerns that certain events can adversely affect outstanding corporate debt, companies have begun to include in their bond covenants event risk provisions that permit bondholders to demand repurchase of their bonds upon the occurrence of certain events, such as a downgrading of the company's debt

\textsuperscript{103} See White, supra note 11, at 149.

\textsuperscript{104} See, e.g., Smith & Warner, supra note 28, at 131 (describing the use of bond covenants for other purposes, such as restricting the payment of dividends).

\textsuperscript{105} See also Pittsburgh Terminal Corp. v. Baltimore & Ohio R.R., 680 F.2d 933, 941 (3d Cir.) (suggesting that managers may owe fiduciary duties to bondholders), cert. denied, 459 U.S. 1056 (1982); Andrew E. Bogen et al., Landmarks on an Unmapped Terrain: Defining the Rights of Debtholders, INSIGHTS, Jan. 1991, at 19 (same); Morey W. McDaniel, Bondholders and Corporate Governance, 41 BUS. LAW. 413, 442-50 (1986) (pointing to emerging common law of bondholder protection); Lawrence Mitchell, The Fairness Rights of Corporate Bondholders, 65 N.Y.U. L. REV. 1165 (1990) (arguing that bondholders should be afforded rights analogous to those afforded stockholders).
rating. In a world without corporate bankruptcy reorganization, one could expect creditors to demand such provisions with even greater urgency; the flexibility of corporate managers would, as a result, be severely limited.

V. CONCLUSION

We have argued that under the 1978 Act the corporate bankruptcy decision is increasingly endogenous, and that operation or reorganization of a company under court supervision permits managers to effect wealth transfers through the pursuit of suboptimal strategies, thereby generating net social costs. Managers, we have argued, effectively invoke Chapter 11 as a defense against unwelcome interference by creditors and as a mechanism for extracting significant wealth from the firm's various security holders. We have also presented empirical evidence supporting our claims.

Having suggested a theoretical analysis that reveals no economic benefits from court-supervised corporate reorganizations, and having identified the significant social costs that such reorganizations engender, we conclude that


107. While we are confident that repeal of Chapter 11 would cause debtholders to insist on covenants that would effectively curtail management's pursuit of risky, negative net present value projects, we are less confident that debtholders could write and enforce covenants requiring managers to accept all positive net present value projects. See supra notes 33, 35 and accompanying text (discussing "underinvestment" as a source of near-default costs). Nevertheless, eliminating equity holder participation in the firm's reorganization may pressure managers to renegotiate covenants that prevent a higher-valued allocation of the firm's resources. Therefore, under our proposal managers may be more likely to approach debtholders to strike a mutually advantageous bargain. At the very least, repeal of Chapter 11 would seem to pose no threat of exacerbating the underinvestment problem.

108. As noted earlier, see supra note 44, we have not addressed the impact of either Chapter 11 or our proposal on corporate constituencies other than stockholders and bondholders. Arguably, however, as compared with current law our proposal would be at worst neutral, and perhaps preferable, in its effects on these other constituencies. Thus, in view of management's demonstrable inefficiency and self-interestedness under Chapter 11, see supra Parts II, III, there is little reason to believe that a distressed firm's employees, customers, suppliers, and communities are better served by managers than by those to whom
Chapter 11 should be repealed and replaced by the mechanism we describe for dealing with "financially distressed" corporations. Our model would produce more efficient allocations of the assets of such firms by effectively assigning control of those assets to individuals having powerful incentives to achieve such allocations. As a consequence, social welfare would be enhanced.

corporate control would devolve under our proposal. Indeed, the residual claimants who would assume control under our proposal would arguably be more effective agents for these constituencies than would managers, since the residual claimants would have a greater incentive to run the firm more efficiently. See supra note 85; text accompanying note 102. Moreover, to the extent that our proposal would eliminate the deadweight costs of bankruptcy reorganizations, see supra note 23; text accompanying note 102, troubled firms should be financially stronger and therefore more likely to survive, which would also benefit these other constituencies. In any event, it is by no means self-evident that the welfare of these constituencies is an appropriate concern for the law of corporate bankruptcy. See Jackson, supra note 11, at 20-27; Baird, A World Without Bankruptcy, supra note 11, at 183-86; Robert K. Rasmusen, Bankruptcy and the Administrative State, 42 HASTINGS L. J. 1567 (1991); Rasmusen, supra note 75, at 324-25; Robert E. Scott, Through Bankruptcy with the Creditors' Bargain Heuristic, 53 U. CHI. L. REV. 690, 700-07 (1986). But see Warren & Westbrook, supra note 20, at 397-403 (arguing that corporate bankruptcy law should concern itself with constituencies such as employees and communities); Elizabeth Warren, Bankruptcy Policy, 54 U. CHI. L. REV. 775, 796 (1987) (same).
SUPPLEMENTARY DATA APPENDIX

In this appendix, we present supporting data for certain results presented in the text. These data relate to the frequency of bankruptcy filings, the number of firms in our sample included in the COMPUSTAT data files, the abnormal returns to the equity holders of filing firms, and corporate management’s reliance on debt financing under the 1978 Act.

A. The Frequency of Bankruptcy Filings

The time series of the number of United States firms filing bankruptcy petitions between 1962 and 1989 is presented in Table A.1. The "TOTAL" Column presents the annual number of bankruptcy filings as reported by The Administrative Office of the United States Courts. These data represent filings based on a July to June calendar year. For example, from July 1988 through June 1989, there were a total of 17,447 Chapter 11 filings. (See the last entry in the first column of Table A.1.)

<table>
<thead>
<tr>
<th>YEAR</th>
<th>TOTAL</th>
<th>BUSINESS</th>
<th>LISTED</th>
<th>TOTAL FILINGS</th>
<th>EXCHANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>% LISTED</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>FIRMS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>FILING</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>RETURN</td>
</tr>
<tr>
<td>1962</td>
<td>903</td>
<td>--</td>
<td>--</td>
<td>2,036</td>
<td>--</td>
</tr>
<tr>
<td>1963</td>
<td>1,188</td>
<td>--</td>
<td>--</td>
<td>2,069</td>
<td>--</td>
</tr>
<tr>
<td>1964</td>
<td>1,088</td>
<td>--</td>
<td>0</td>
<td>2,111</td>
<td>0.134</td>
</tr>
<tr>
<td>1965</td>
<td>1,022</td>
<td>--</td>
<td>3</td>
<td>2,162</td>
<td>18.33</td>
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<tr>
<td>1966</td>
<td>939</td>
<td>--</td>
<td>0</td>
<td>2,175</td>
<td>0.091</td>
</tr>
<tr>
<td>1967</td>
<td>1,033</td>
<td>--</td>
<td>3</td>
<td>2,194</td>
<td>0.137</td>
</tr>
<tr>
<td>1968</td>
<td>953</td>
<td>--</td>
<td>2</td>
<td>2,203</td>
<td>0.091</td>
</tr>
<tr>
<td>1969</td>
<td>867</td>
<td>--</td>
<td>1</td>
<td>2,270</td>
<td>0.044</td>
</tr>
<tr>
<td>1970</td>
<td>1,262</td>
<td>--</td>
<td>6</td>
<td>2,387</td>
<td>0.251</td>
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<tr>
<td>1971</td>
<td>1,762</td>
<td>--</td>
<td>17</td>
<td>2,479</td>
<td>0.685</td>
</tr>
<tr>
<td>1972</td>
<td>2,051</td>
<td>--</td>
<td>9</td>
<td>2,635</td>
<td>0.542</td>
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<tr>
<td>1973</td>
<td>1,458</td>
<td>--</td>
<td>15</td>
<td>2,731</td>
<td>0.549</td>
</tr>
<tr>
<td>1974</td>
<td>2,171</td>
<td>--</td>
<td>16</td>
<td>2,723</td>
<td>0.588</td>
</tr>
<tr>
<td>1975</td>
<td>3,505</td>
<td>--</td>
<td>16</td>
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<td>0.600</td>
</tr>
<tr>
<td>1976</td>
<td>3,235</td>
<td>--</td>
<td>22</td>
<td>2,621</td>
<td>0.839</td>
</tr>
<tr>
<td>1977</td>
<td>3,046</td>
<td>--</td>
<td>15</td>
<td>2,605</td>
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<tr>
<td>1978</td>
<td>3,266</td>
<td>--</td>
<td>21</td>
<td>2,514</td>
<td>0.835</td>
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<tr>
<td>1979</td>
<td>3,042</td>
<td>--</td>
<td>15</td>
<td>2,446</td>
<td>0.613</td>
</tr>
</tbody>
</table>
Notes Accompanying Table A.1:

YEAR: Year end June 30.

TOTAL: Total corporate bankruptcy filings as reported by the Administrative Office of the U.S. Courts.

BUSINESS: Total businesses filings as reported by the Administrative Office of the U.S. Courts.

LISTED: Firms that filed bankruptcy petitions and were listed on either the NYSE or AMEX between July 1964 and December 1989.

TOTAL EXCHANGE LISTED: Total number of firms listed on the NYSE and AMEX

% LISTED: Percentage of exchange-listed firms filing bankruptcy petitions

MARKET: Holding period return to CRSP Equally Weighted Market Portfolio.

The "TOTAL" column in Table A.1 reports filings of both business and individual corporations. The entries in the column labeled "BUSINESS" represent only businesses. Although these data are only available for the 1981-1989 period, it is evident that the numbers under "BUSINESS" represent a significant and relatively constant fraction of those under the "TOTAL" heading. Over the nine years for which both types of data are available, the business filings range from a low of 85% to a high of 92% of all Chapter 11 filings. Based on these findings, the number of total bankruptcy filings appears to be a good proxy for the number of businesses filing in any given year.

The third column in Table A.1 reports the number of firms listed on either the NYSE or AMEX over the period 1964-1989 filing bankruptcy petitions in the indicated year. This is our basic sample. The fourth column reports the total number of firms listed on the NYSE and the AMEX, and the fifth column reports the percentage of exchange-listed firms that filed a bankruptcy petition in the indicated year. The last column in Table A.1 reports the annual return to the CRSP Equally Weighted Market Portfolio.

B. The Representation of Our Sample Firms in the COMPUSTAT File

The data in Table A.2 show the representation of our sample of bankruptcy firms in the COMPUSTAT file. Table A.2 shows that COMPUSTAT does not include any data on our firms for the 1960's. Thus, pre-Act/post-Act comparisons derived from the COMPUSTAT files are actually comparisons between the decades of the 1970's and 1980's. Table A.2 also reveals a significantly greater representation of firms in the post-Act period. In the earlier period, an annual average of 43% of filing firms were listed on COMPUSTAT, while the
The annual average for the post-Act period is 77%, with the total number of firms listed on COMPUSTAT almost doubling over the two decades.

We speculate that the COMPUSTAT files are more likely to include long-standing, viable firms than failing companies and that, therefore, our findings regarding the returns to firms in the pre-Act period may well overstate the financial strength of firms filing bankruptcy petitions in that period. It seems unlikely, in any case, that the pre-Act COMPUSTAT files are biased in the opposite direction by including a disproportionate number of financially weakened companies. Consequently, a larger pre-Act sample would arguably produce data even more supportive of our conclusions regarding the relative financial strength of pre-Act and post-Act bankrupt firms.

### TABLE A.2. Availability of Accounting Data on COMPUSTAT for Firms Filing Voluntary Bankruptcy Petitions

<table>
<thead>
<tr>
<th>YEAR</th>
<th>TOTAL FIRMS ON COMPUSTAT</th>
<th>TOTAL FILINGS</th>
<th>FILINGS ON COMPUSTAT</th>
<th>% OF FILING FIRMS LISTED ON COMPUSTAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1964</td>
<td>18</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1965</td>
<td>21</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1966</td>
<td>1,041</td>
<td>2</td>
<td>0</td>
<td>0</td>
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<tr>
<td>1967</td>
<td>1,125</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1968</td>
<td>1,298</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1969</td>
<td>1,383</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1970</td>
<td>3,305</td>
<td>14</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1971</td>
<td>3,580</td>
<td>12</td>
<td>4</td>
<td>33</td>
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<td>1972</td>
<td>3,637</td>
<td>11</td>
<td>5</td>
<td>46</td>
</tr>
<tr>
<td>1973</td>
<td>3,889</td>
<td>14</td>
<td>3</td>
<td>21</td>
</tr>
<tr>
<td>1974</td>
<td>5,528</td>
<td>19</td>
<td>8</td>
<td>42</td>
</tr>
<tr>
<td>1975</td>
<td>5,595</td>
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<td>50</td>
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<td>1976</td>
<td>5,644</td>
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<td>32</td>
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<td>1977</td>
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<td>56</td>
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<td>55</td>
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<td>1979</td>
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<td>10</td>
<td>5</td>
<td>50</td>
</tr>
<tr>
<td>1980</td>
<td>5,526</td>
<td>12</td>
<td>8</td>
<td>67</td>
</tr>
<tr>
<td>1981</td>
<td>5,576</td>
<td>16</td>
<td>10</td>
<td>63</td>
</tr>
<tr>
<td>1982</td>
<td>5,878</td>
<td>20</td>
<td>15</td>
<td>75</td>
</tr>
<tr>
<td>1983</td>
<td>6,152</td>
<td>13</td>
<td>9</td>
<td>69</td>
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<td>83</td>
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<td>89</td>
</tr>
<tr>
<td>1986</td>
<td>6,928</td>
<td>26</td>
<td>19</td>
<td>73</td>
</tr>
<tr>
<td>1987</td>
<td>6,931</td>
<td>8</td>
<td>6</td>
<td>75</td>
</tr>
<tr>
<td>1988</td>
<td>6,640</td>
<td>13</td>
<td>10</td>
<td>77</td>
</tr>
<tr>
<td>1989</td>
<td>4,992</td>
<td>11</td>
<td>11</td>
<td>100</td>
</tr>
</tbody>
</table>

C. The Abnormal Returns to the Equity Holders of Firms Filing Bankruptcy Petitions

Table A.3 reports the mean percentage abnormal returns to firms filing bankruptcy petitions in each of the two relevant time periods. Eleven different holding periods are reported in the table. Note that only traded firms are included in each of the holding periods. As firms are delisted from the exchanges, they are dropped from the analysis.
TABLE A.3. Mean Percentage Abnormal Returns to the Stockholders of Firms Filing Bankruptcy Petitions and Traded Over The Indicated Holding Period

[The number of firms is reported in brackets [x] and the t-statistics of the differences are reported in parentheses (x).]

<table>
<thead>
<tr>
<th>HOLDING PERIOD</th>
<th>EVENT YEAR</th>
<th>PRE-ACT</th>
<th>POST-ACT</th>
<th>DIFFERENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>-1000 to -876</td>
<td>-4</td>
<td>-0.31</td>
<td>-1.59</td>
<td>-1.28</td>
</tr>
<tr>
<td></td>
<td>[117]</td>
<td>[122]</td>
<td>[119]</td>
<td>[126]</td>
</tr>
<tr>
<td>-875 to -751</td>
<td>8.30</td>
<td>-8.75</td>
<td>-17.05</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[119]</td>
<td>[126]</td>
<td>[112]</td>
<td>[122]</td>
</tr>
<tr>
<td>-750 to -626</td>
<td>-3.42</td>
<td>-3.36</td>
<td>-0.44</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[125]</td>
<td>[127]</td>
<td>[125]</td>
<td>[126]</td>
</tr>
<tr>
<td>-625 to -501</td>
<td>-6.49</td>
<td>-11.44</td>
<td>-4.95</td>
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<td></td>
<td>[131]</td>
<td>[130]</td>
<td>[125]</td>
<td>[126]</td>
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<td></td>
<td>[121]</td>
<td>[129]</td>
<td>[121]</td>
<td>[123]</td>
</tr>
<tr>
<td>-250 to -121</td>
<td>-16.39</td>
<td>-25.20</td>
<td>-8.81</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[106]</td>
<td>[127]</td>
<td>[126]</td>
<td>[128]</td>
</tr>
<tr>
<td>-120 to -21</td>
<td>-23.72</td>
<td>-37.60</td>
<td>-13.88</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[72]</td>
<td>[117]</td>
<td>[72]</td>
<td>[117]</td>
</tr>
<tr>
<td>-20 to -6</td>
<td>-10.31</td>
<td>-13.68</td>
<td>-3.37</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[53]</td>
<td>[103]</td>
<td>[53]</td>
<td>[103]</td>
</tr>
<tr>
<td>-5 to 0</td>
<td>-31.93</td>
<td>-24.34</td>
<td>7.59</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[22]</td>
<td>[80]</td>
<td>[22]</td>
<td>[80]</td>
</tr>
<tr>
<td>1 to 20</td>
<td>8.23</td>
<td>-0.65</td>
<td>-8.88</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[8]</td>
<td>[48]</td>
<td>[8]</td>
<td>[46]</td>
</tr>
<tr>
<td>21 to 120</td>
<td>-9.18</td>
<td>-0.50</td>
<td>8.68</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[8]</td>
<td>[46]</td>
<td>[8]</td>
<td>[46]</td>
</tr>
</tbody>
</table>

a Holding periods are stated in trading days relative to the filing date, which is defined as day 0.
There are approximately 250 trading days in a calendar year, 20 trading days in a calendar month, and 5 trading days in a calendar week.

Holding periods are stated in terms of trading days relative to the filing date and roughly correspond to the following calendar periods. The first two holding periods (-1000 to -876) and (-875 to -751) correspond to event year -4. The next two holding periods (-750 to -626) and (-625 to -501) cover event year -3. The fifth holding period (-500 to -251) is from two years before to one year before the filing date. The sixth (-250 to -121) is from one year before to six months before filing. The seventh (-120 to -21) is from six months to one month before filing. The eighth (-20 to -6) is from one month to one week before filing. The ninth (-5 to 0) runs from one week before filing to the announcement date. The tenth holding period is from one day to one month after filing, and the last period is from one month to six months after filing.

The abnormal returns to both portfolios are negative from three years prior to filing through the filing month. More important, in eight of the nine pre-filing periods, the AR is less for firms filing in the post-Act environment. In four of these eight time periods, the difference is statistically significant.
Although the AR is less negative for all pre-filing periods prior to 1980, the AR around the time of announcement (-5 to 0) is less than the AR for firms in the same holding period post-Act. These results indicate that the filing of a bankruptcy petition was a greater surprise in the earlier period than in the later period. Note also that there is no significant change in the value of the firms in either sample after the filing date. The lack of any significant movement in the post-announcement holding periods is consistent with an efficient capital market, confirming the accuracy of the filing dates used in the sample.

D. The Mean Debt-to-Asset Ratios of Firms Filing Bankruptcy Petitions

Table A.4 presents the mean (long-term) debt-to-asset ratios for firms filing bankruptcy petitions. The data are reported separately for the pre-Act and post-Act periods. The debt-to-asset ratio for each firm is adjusted by the (value-weighted) average debt-to-asset ratio of all firms listed on the COMPUSTAT file in the indicated year. Thus, we may think of these as abnormal debt-to-asset ratios.

The differences in the means of the two sub-periods indicate significantly higher debt-to-asset ratios in the post-Act period. The mean ratio for the latter period is greater that the mean ratio in the pre-Act period in all five years, and in four of the five periods, the t-statistic of the difference is greater than 2.0.

We interpret these results as evidence of management's increased willingness under the Act to risk financial distress by incurring high levels of debt. Put differently, the data indicate that the latitude afforded managers by Chapter 11 made financial distress less onerous by relaxing the constraints otherwise imposed by a more highly leveraged capital structure.
TABLE A.4. Debt-to-Asset Ratios of Firms Filing Bankruptcy Petitions

[Reported is the mean, economy-wide adjusted debt-to-asset ratio (DTA) for firms in the indicated sample. The number of firms is reported in brackets [x] and the t-statistics of the differences are reported in parentheses (x).]

<table>
<thead>
<tr>
<th>Event Year</th>
<th>Pre-Act</th>
<th>Post-Act</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>-5</td>
<td>1.74</td>
<td>9.46</td>
<td>7.72</td>
</tr>
<tr>
<td></td>
<td>[45]</td>
<td>[133]</td>
<td>(2.44)</td>
</tr>
<tr>
<td>-4</td>
<td>2.65</td>
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<td>[68]</td>
<td>[141]</td>
<td>(3.02)</td>
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<td>-2</td>
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<td>9.46</td>
<td>6.85</td>
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<td>[75]</td>
<td>[140]</td>
<td>(2.39)</td>
</tr>
<tr>
<td>-1</td>
<td>5.59</td>
<td>9.46</td>
<td>5.24</td>
</tr>
<tr>
<td></td>
<td>[62]</td>
<td>[130]</td>
<td>(1.34)</td>
</tr>
</tbody>
</table>

\[ \text{a DTA} = \frac{\sum \text{Long-term Debt}}{\sum \text{Total Assets}} = \frac{\sum \text{Long-term Debt}}{\sum \text{Total Assets}} \]

\[ \sum \text{Long-term Debt} = \text{The summation of the long-term debt for all firms listed on the COMPUSTAT tape in the relevant year} \]

\[ \sum \text{Total Assets} = \text{The summation of the total asset figures for all firms listed on the COMPUSTAT tape in the relevant year} \]