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ORGANIZATIONAL DISTRESS AND BANKRUPTCY: RESOURCES, STRATEGY, AND CORPORATE CONTROL AS DETERMINANTS OF THE FILING DECISION

A Dissertation
presented to
the Faculty of the Graduate School
University of Missouri-Columbia

In Partial Fulfillment
of the Requirements for the Degree

Doctor of Philosophy

---

by

WILLIAM J. DONOHER

Dr. Richard A. Johnson, Dissertation Supervisor

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ORGANIZATIONAL DISTRESS AND BANKRUPTCY:
RESOURCES, STRATEGY, AND CORPORATE CONTROL AS
DETERMINANTS OF THE FILING DECISION

presented by William J. Donoher

a candidate for the degree of Doctor of Philosophy

and hereby certify that in their opinion such dissertation is worthy of acceptance.

Allen C. Bluedorn

Daniel W. Greening

Douglas D. Moesel

ACKNOWLEDGMENTS

The author gratefully acknowledges the support and assistance of the faculty of the Department of Management, University of Missouri-Columbia. I learned many things from many people during the course of my study, all of which were invaluable in my intellectual development. Special thanks must, of course, be extended to the Management Department members of my dissertation committee: Rick Johnson (Chair), Al Bluedorn, Dan Greening, and Doug Moesel. I am indebted for their time and effort in connection with this project and for their involvement in my course of study. Finally, Bob Lawless of the University of Missouri-Columbia College of Law, who served as my external advisor, spent a great deal of time carefully reviewing and commenting upon the legal issues raised in this research. His insights and instruction improved the content of my work and provided a solid foundation for my efforts. Any remaining errors or omissions are my own.

ORGANIZATIONAL DISTRESS AND BANKRUPTCY: RESOURCES, STRATEGY, AND CORPORATE CONTROL AS DETERMINANTS OF THE FILING DECISION

William J. Donoher

Dr. Richard A. Johnson, Dissertation Supervisor

ABSTRACT

This dissertation examined the timing of the bankruptcy decision, and specifically the distinctions between filing firms and firms that are equally distressed but manage to avoid filing. The study also addressed distinctions among filing firms with respect to solvency at the time of filing to determine the influences on the timing of the bankruptcy decision. Resource-based theory and agency theory were incorporated as alternative explanatory frameworks, based upon potential views of bankruptcy as emanating from resource deficiencies or the dynamics of corporate control.

Firms included in the sample were publicly traded firms filing bankruptcy between 1990 and 1996, inclusive. These firms were matched with nonfiling firms on the basis of industry, size, and leverage as of the year in which their counterpart firms filed bankruptcy. Data were collected for the year preceding the filing year for both sets of companies, and the hypotheses were tested using logistic regression.

Results of the study were robust for aspects of both theoretical frameworks. With respect to resource-based theory, related diversification was negatively associated with the incidence of bankruptcy, a result consistent with notions of leveraging core competencies and specialized resource bases. Agency theoretical results were somewhat stronger, with clear effects observed for inside equity, and both secured debt and current debt percentages. Partial support was found also for the effect of investor board representation. Specifically, the results suggest that each of these factors moderates the relationship between firm solvency and filing, such that high levels of each are associated with filing at higher levels of solvency than when low levels of each are observed. In most instances, nonfiling firms are more solvent than filing firms at either level of the moderator variable.

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CHAPTER 1

INTRODUCTION

By the late 1970s, Chrysler Corporation stood on the edge of a financial precipice. Years of losses and increasing competition from both foreign and domestic rivals had left the nation's third largest auto manufacturer with few alternatives but to renegotiate the terms of its credit facilities--or to seek bankruptcy protection. Chrysler and its wholly-owned subsidiary, Chrysler Financial Corp., together owed some $3.75 billion to hundreds of banks and other creditors, large and small, in the U.S. and overseas.

Even though the company was armed with federal assistance in the form of loan guarantees, Chrysler's lenders were unwilling to comply with the initial restructuring requests. Viewing parent and subsidiary as separable assets, the creditors attempted to maneuver Chrysler into bankruptcy while leaving Chrysler Financial outside of the proceedings. Chrysler responded by circulating a "Memo for Liquidation" in which the company made clear that both Chrysler and Chrysler Financial would enter bankruptcy together if talks failed, an increasingly likely prospect. Cracks in the creditors' ranks soon emerged, not only between large and small banks, but also between such leading banks as Manufacturers Hanover on the one hand, which supported Chrysler's position, and Citibank and Bank of America on the other, who both sought to isolate Manufacturers. Ultimately, after more than six months of intrigue and often bitter discussion, a deal was struck (Moritz & Seaman, 1981).

Although Chrysler never filed bankruptcy, the story of the company's restructuring provides a glimpse of the dynamics associated with the reorganization process. Reorganization affords debtor organizations an opportunity, via the mechanism of Chapter

11 of the Bankruptcy Code (the "Code"), to negotiate the settlement of claims held by various parties on mutually favorable terms and to emerge from the proceedings with new life. At least in theory, then, the Code is designed to encourage and facilitate reorganization rather than liquidation (Bebchuk, 1988; LoPucki & Whitford, 1990) in order to reduce the social costs of firm failure, such as lost employment opportunities or investment potential (Easterbrook, 1990; Warren & Westbrook, 1986).

In practice, these aspirations may not be fully realized (Bebchuk, 1988; Jensen, 1991; Roe, 1983). The parties to the bankruptcy--the debtor, its creditors, and other claimants, including stockholders--engage in what often amounts to a power struggle for control of the firm and the disposition of its assets, a process that may result in a less desirable capital structure for the reorganized firm than the naïve explanation of bankruptcy would suggest (Bebchuk, 1988; Roe, 1983). Any outcome, however, whether efficient or inefficient, is dependent upon the manner in which the players interact with one another within the rules of the game, i.e., the mechanics of the reorganization process that reflect the policy preferences underlying the Code. Indeed, even the very decision to file, or when to file, shapes the nature of the players' interaction and the reorganization itself by fixing the point in time at which claims accrue and rights are established under the Code. The possibility for opportunistic or strategic filing thus presents an important research question.

Although most research in strategic management has been concerned with organizational success (Daily, 1995; Whetten, 1980), researchers are becoming increasingly interested in patterns of firm decline (D'Aveni, 1989; Hambrick & D'Aveni, 1988, 1992; Mone, McKinley, & Barker, 1998), including reorganization (Daily, 1994, 1995, 1996; Daily & Dalton, 1994a, 1994b, 1995; Flynn & Farid, 1991; Moulton &

Thomas, 1993). The purpose of this study is to extend the findings of this research by examining a question left unanswered by the existing literature: Why do some firms opt for bankruptcy while others, equally distressed, choose to avoid or postpone the bankruptcy decision? This research focuses on the latter question by drawing upon perspectives from management, finance, and law to better understand the choices of managers, and the contextual dynamics of strategic choice, in declining firms. By better understanding this process, and especially by adopting a multitheoretical perspective, we may gain insight into appropriate public policy as well as effective monitoring and control systems that enhance the likelihood of performance maximization and the minimization of control rent appropriation or catastrophic declines in shareholder wealth.

As intimated above, the context in which the bankruptcy decision is made, including the rules under which bankruptcy reorganization proceeds and, as in Chrysler's case, the strategic use of the threat of bankruptcy, approximates game theoretical characteristics in its alteration of the governance and operational dynamics of the firm (Roe, 1983). From a managerial perspective, certain benefits may accrue from the decision to file. For example, the automatic stay enforced in conjunction with the proceedings, which precludes creditors from initiating collection efforts, may result in an increase in investment incentives, which in turn may facilitate the opportunistic capture of rents with which the free cash flow hypothesis (Jensen, 1986) is concerned. Moreover, because potential creditor holdouts and free rider problems are minimized as a result of the voting rules and the so-called "cramdown" provisions of the Code, management may have more power over the shape of the reorganized firm than would have been possible outside of bankruptcy. Existing research also suggests that outside members of the board tend to resign in increasing numbers as the firm approaches bankruptcy (Daily & Dalton, 1994a, 1994b, 1995; Gilson, 1989, 1990). Such departures, if not replaced by other outsiders representing creditors, can be expected to increase the relative power of management as a critical source of external control is lost (Baysinger & Hoskisson, 1990). Thus, the decision to file may occur under circumstances, and at such times, that managerial control or influence over the process is maximized.

One reason to expect the decision to file to be made when managerial control can be maximized is that any potential benefits accruing from the bankruptcy process may not be achieved without the at least the risk of some loss or cost. For example, although Chapter 2 will show that the result is far from automatic, managers may be removed from office during or immediately prior to a bankruptcy petition (Gilson, 1989, 1990; LoPucki & Whitford, 1993b). Moreover, managerial discretion during the pendency of a bankruptcy case is likely to be circumscribed (Moulton & Thomas, 1993), and recovery under pre-petition employment contracts may be limited or denied (Code Section 365). Alternatively, creditors, if sufficiently powerful, may successfully seek to liquidate the firm or to force its sale, in whole or in part, to the highest available bidder. More importantly, although the Code's voting rules may delimit creditor power, the very fact that creditors enjoy a voice in the firm's reorganization increases the governance capability of debt relative to that enjoyed outside bankruptcy (LoPucki & Whitford, 1993a). In short, management must balance competing considerations in order to arrive at a decision regarding bankruptcy.

Given the calculus implicit in the foregoing discussion, and in keeping with the expectations of agency theory (Fama & Jensen, 1983a, 1983b; Jensen & Meckling, 1976), the decision to file, and more importantly the timing of the filing, can be expected to reflect managerial interest maximization at the margin. Thus, other things equal, filing will occur when control opportunities can be maximized, or will be delayed so that, even if management ultimately is replaced, interim rent appropriation can be maximized.

Subject to these fundamental incentives, whether or not a bankruptcy petition is filed and, if so, what shape the reorganization assumes, also depends critically upon a number of factors relating to the status of the players' respective legal claims, the financial condition of the firm, and the extent of managerial equity. With respect to the first, the relative legal positions of debt and equity are dependent upon the precise capital structure of the firm. Although debt is always superior to equity in reorganization, managers may adopt a capital structure with different classes of both debt and equity, each with different legal rights. Maturity, priority, and collateralization, for example, affect the status of debt and its incentive intensity, such that certain classes of debt may have more in common with equity in a reorganization. The extent to which this is true also depends upon the firm's financial condition, specifically its going concern value in comparison to its liquidation value. As the excess of the former over the latter decreases, the number of impaired classes typically increases, and different legal rights, and by extension managerial incentives, are likely to be observed as a consequence. Finally, managerial equity, typically viewed as a means of incentive alignment in healthy organizations, may, according to some legal thought (Adler, 1996), result in perverse pre-petition incentives in declining firms, and affect managerial evaluations of the bankruptcy process and pre-petition strategy and capital structure decisions.

Building upon the foregoing observations and the body of capital structure literature from finance, this research will investigate the behavior of managers in distressed organizations. In particular, filing and non-filing (but similarly distressed) firms will be compared to ascertain differences in capital structure and governance patterns, including equity concentration and board composition. Employing competing theoretical perspectives, the research will seek to investigate which of the foregoing variables, and by extension, which body of theory, predicts the decision to file.

The design of the study will be longitudinal, encompassing the years 1990-1996, a period of time associated with increasing attention to the importance of strong corporate governance (Baysinger & Hoskisson, 1990; Davis, 1991; Zajac, 1990). The selected timeframe also is coextensive with generally favorable economic conditions, thus providing a de facto control with respect to economic influences on the bankruptcy decision. Data for the study will be drawn from archival sources, including firm proxy statements and 10-Ks, as well as publicly available databases such as CompuStat and Compact Disclosure.

Discussion of the topic is organized as follows. Chapter 2 develops the theoretical background of the work, including initial explication of the Code, the general procedures involved in reorganization, and associated insights drawn from the body of law and finance literature concerned with bankruptcy, creditors' rights, and financial distress. Thereafter, the strategic management treatment of capital structure, organizational decline and bankruptcy, and agency theoretical relationships will be presented. Based upon the framework provided by these bodies of literature, the hypotheses investigated by this research will be derived. Chapter 3 presents the methodology used to test the hypotheses, sample selection procedures, and the operationalization of the variables used in the study. Chapter 4 sets forth the results of the study. Chapter 5 discusses the conclusions derived from the results, summarizes the implications of the findings for managerial practice, and provides suggestions for future research. A summary overview of the research is provided in conclusion in Chapter 6.

CHAPTER 2

THEORETICAL BACKGROUND AND DEVELOPMENT

One of the premises of this study is the need to integrate various perspectives and theoretical frameworks to properly analyze the dynamics of organizational decline and the bankruptcy decision. This chapter will discuss the extant theoretical and empirical work relevant to the issue of financial distress and bankruptcy, beginning with an overview of the bankruptcy process and current legal thought regarding the effects of the law on managerial incentives and strategic choice. Thereafter, theoretical perspectives on governance and strategic choice will be delineated, including arguments and supporting evidence from agency theory, resource dependence theory, and the resource-based theory of the firm.

Organizational Distress and the Bankruptcy Process

Chapter 11 Reorganization: An Overview

Prior to 1979, bankruptcy law was ambivalent with respect to the nature or permissibility of reorganization. The then-prevailing Bankruptcy Act of 1898 provided for different reorganization procedures for public companies (Chapter X) and smaller firms (Chapter XI). Because Chapter X contemplated the involvement of the Securities and Exchange Commission, which often entailed lengthy review and negotiation, and because appointment of a trustee in place of incumbent firm management was mandatory, firms tended to postpone the bankruptcy decision (Warren & Westbrook, 1986: 396-397). In turn, the courts reinforced this proclivity by forbidding public companies from availing themselves of the relatively more streamlined procedures of Chapter X. The ultimate result was that filing companies often were extremely insolvent and unlikely to be successfully reorganized.

In late 1978, the Bankruptcy Reform Act (establishing the Bankruptcy Code) was passed in an effort to address these perceived shortcomings and to standardize, and encourage, the reorganization of debtor companies (LoPucki, 1993). Thus, under the present Chapter 11, the role of the SEC was minimized and the concept of the "debtor in possession" (Section 1101) was introduced, thereby replacing automatic trusteeship with a rule favoring managerial continuity (Warren & Westbrook, 1986). Appointment of an independent trustee was reserved for those cases involving "fraud, dishonesty, incompetence, or gross mismanagement" (Section 1104), or such other factors as the court may deem relevant (*In re Ionosphere Clubs, Inc.*, 113 B.R. 164 (Bkrtcy. S.D.N.Y. 1990). In practice, resort to a trustee has occurred in only a limited number of cases (Felsenfeld, 1996; *In re Cumberland Investment Co.*, 118 B.R. 3 (Bkrtcy. D.R.I. 1990), aff'd, 133 B.R. 275 (1991)). These changes clearly removed the implicit penalties and disincentives associated with early filing applicable under the original Bankruptcy Act.

With respect to bankruptcy procedure, the debtor organization initially may file under either Chapter 7 (liquidation) or Chapter 11 (reorganization) of the Code (see Felsenfeld (1996) and Warren and Westbrook (1986) for an extended discussion of the topics and issues summarized hereafter). Because liquidation and reorganization differ, and because we are concerned here primarily with the reorganization process, liquidation will not be elaborated except to note its use, actual or threatened, as potential leverage for a negotiated settlement. Also, although involuntary bankruptcy, i.e. creditor-induced reorganization, is contemplated by the Code, the occurrence of such cases is relatively infrequent, and in any event the focus of this research is management's decision to file. The discussion to follow therefore concentrates only on voluntary reorganization cases.

Upon filing the Chapter 11 petition, the debtor organization immediately is shielded from creditors and other claimants by what is known as the automatic stay (Section 362). Designed to facilitate orderly disposition of claims, the stay operates to preclude any collection or claim enforcement actions against the debtor. Although claimants may move for a court order lifting the stay, often with respect to specific assets, the Code limits the circumstances in which claimants may seek to do so, and even within such delimited circumstances judicial discretion in applying the lift stay standards may result in denial of the motion.

Once the debtor files its petition, the rights of creditors and other claimants are fixed as of the date of the filing. These rights accrue as a function of the secured or unsecured status of the claimants and as a function of priority in time. Thus, creditors whose claims are secured by specific or identifiable assets of the debtor are considered senior to those whose obligations are general and unsecured. Likewise, creditors whose secured claims relate to the same collateral (as when a blanket lien on all assets of the firm is created), priority is dependent upon the order of "perfection" of the subject lien (i.e., fulfillment of the legal steps necessary to provide adequate notice to third parties of the obligation and the collateral involved). It is also possible to create subordinated indebtedness, whereby, irrespective of the priority otherwise attaching, a given obligation, by its terms, may be expressly junior in priority to other indebtedness of the firm.

The classification of creditors and other claimants by means of the nature of rights and priorities also is reflected in the debtor's proposed plan of reorganization, the focal point of the case. The debtor must group claims into classes comprised of similar kinds of claims, and propose a settlement with respect to each. Because approval of the plan requires approval by the class as a whole (based on the affirmative vote of the holders of two-thirds in amount and half in number of the subject claims within the class (Section 1126(c)), strategic placement of creditors within classes may ensure approval. However, the Code requires that claims grouped together within a particular class must be "substantially similar" to one another (Section 1122(a)). Some courts have interpreted this provision as prohibiting the classification of claims solely for the purpose of voting approval (*In re Pine Lake Village Apartment Co.*, 19 B.R. 819 (Bkrtcy. S.D.N.Y. 1982); *In re Greystone III Joint Venture*, 995 F.2d 1274 (5th Cir. 1992); *In re Boston Post Road Ltd. Partnership*, 21 F.3d 477 (2d Cir. 1994)), but others have held to the contrary (*In re Woodbrook Assocs.*, 19 F.3d 312 (7th Cir. 1994); *Teamsters National Freight Ind. Negotiating Comm. v. U.S. Truck Co.*, 800 F.2d 581 (6th Cir. 1986); *In re Rivers End Apartments*, 1994 WL 190231 (Bankr. S.D. Ohio 1994); *In re ZRM-Oklahoma Partnership*, 156 B.R. 67 (Bankr. W.D. Okla. 1993)). Thus, whether the "substantially similar" limitation adequately addresses the prospect of strategic classification remains open to debate, although more complex cases may render gerrymandering impractical.

Two issues relevant to the confirmation of the plan remain. The first to be considered is what is known as the absolute priority rule. Under this doctrine, claimants whose claims are superior must be satisfied in full prior to the payment of, or provision for payment to, junior claimants. However, because the Code requires approval of the plan by all classes (Section 1129), any class' failure to consent to the plan raises the prospect of delay and a concomitant increase in costs to the consenting classes. The consenting classes, many or most of whom may be senior in priority to the dissenters, thus must weigh the prospect of delay against the price of a renegotiated settlement on more favorable terms than the original. In essence, Section 1129 confers negotiating leverage that can be utilized by lower priority claimants to obtain wealth transfers that priority rules alone would not sustain (LoPucki & Whitford, 1990).

The requirement for unanimous class approval of the plan and the attendant prospect for junior claimants to engage in de facto extortion tactics raises the second issue relating to the finalization of the plan: the possibility of "cramdown." Under Section 1129(b), approval of the plan can be "crammed down" on classes who have rejected confirmation if the court is satisfied that the plan does not discriminate unfairly and that it is fair and equitable with respect to each class that voted against confirmation. This provision thus introduces a counterweight against the prospect of holdouts pursuant to Section 1129 approval requirements, permitting senior classes to bargain against classes of lower priority in the shadow of a motion for cramdown. However, the time and cost involved in litigating a cramdown request may still exceed that of settlement, and some commentators therefore argue that in most instances cramdown is not a viable alternative to buying the consent of junior classes (e.g., Roe, 1983).

The fundamental message of the foregoing discussion, then, and indeed the premise of this study, is that reorganization is a process of negotiation that is equally dependent upon the balance of competing interests and the characteristics of the reorganizing company. Proper analysis of this important phenomenon must incorporate both aspects, for not only do they influence the shape of the reorganization and its likelihood of success, but they also influence the decision to file and the timing of that decision. Emphasis on the characteristics of the company at the expense of a consideration of the body of external claimants or parties in interest risks providing an incomplete explanation of critical relationships affecting the reorganization process. Much of the existing work in this area has focused on firm-level characteristics (e.g., Daily, 1995, 1996; Daily & Dalton, 1994a, 1994b, 1995) without regard to a competing interest perspective. The result is a "black box" view of bankruptcy and organizational decline, in which certain variables are associated with, or appear to trigger, filing. This research seeks to expand this perspective by investigating the interrelationships between firm characteristics and the balance of interests that are implicated by organizational decline in order to provide a richer understanding of this important phenomenon.

Given that competing interests must be harmonized, it follows that the prepetition period may be characterized by efforts on both sides to maximize negotiating leverage, if possible at the expense of any actual or potential opposition. The following section addresses these issues by considering the implications of the reorganization process for managerial discretion, strategic choice, and the decision to file or avoid bankruptcy.

Perspectives from Law and Finance: The Implications of Financial Distress and the Bankruptcy Process

Given the realities of the reorganization process and the legal rules shaping the approval of the plan, how will management act? More to the point, when, or under what circumstances, might management seek to maximize its own utility, or that of shareholders, creditors, or other constituents, by filing or delaying the filing of a bankruptcy petition? Scholarship from the fields of law and finance bearing upon the question of incentives and choice under the law provides a basis for investigation of this question.

If the bankruptcy decision is based solely on economic wealth maximization, a key consideration must be the cost of entering bankruptcy and concluding a plan of reorganization. Not surprisingly, several studies have documented the significant expense of a bankruptcy proceeding, with estimates of costs as a percentage of assets ranging from 2.8% to 17.6% (Ang, Chua, & McConnell, 1982; Gilson, 1991; Lawless & Ferris, in press; Warner, 1977; Weiss, 1990). One older study, based on a sample from 1964, concluded that bankruptcy costs constituted an astounding 24.9% of total assets (Stanley & Girth, 1971). Nor is the problem of expense confined to reorganizations: a recent study of the cost of liquidation proceedings showed that mean total cost as a percentage of assets of liquidating firms was 6.1%, in line with the findings of the extant reorganization cost studies (Lawless & Ferris, 1997). These findings concern only the direct, measurable costs of bankruptcy, principally legal and other professional advisory fees. Opportunity costs and other indirect expenses to the reorganizing firm are not included in such computations, but often contribute significantly to the total cost of the reorganization (e.g., Cutler & Summers, 1988; Weiss & Wruck, 1998).

By contrast, Gilson (1991) estimates that the cost of private renegotiation of debt contracts outside of bankruptcy amounts to only .65% of total assets. The expense of so-called prepackaged bankruptcies, in which the debtor organization and its claimants first reach a negotiated settlement outside of bankruptcy court jurisdiction and only then file in order to gain court validation and eliminate any potential holdouts, appears to fall between the costs of private workouts and conventional bankruptcy proceedings (McConnell & Servaes, 1991; Salerno & Hansen, 1991; Tashjian, Lease, & McConnell, 1996).

Given these findings, the economics of the bankruptcy decision suggest that formal reorganizations or liquidations should be undertaken only as a last resort. For any party with a desire to conserve firm asset value and thereby maximize potential distributions, negotiated settlements, either in the form of private workouts or prepackaged bankruptcies, clearly represent a superior choice. That we observe bankruptcy at all suggests that alternative dynamics are at play in the decision calculus of managers.

In point of fact, although direct costs associated with private debt renegotiation appear minimal, Gilson (1997) argues in a more recent study that when transaction costs, broadly defined, are considered, Chapter 11 represents a more efficient solution than private renegotiation. A principal reason for this result is the potential for holdouts among creditors with whom the debtor organization seeks to negotiate (Gilson, 1991, 1997; James, 1996). With respect to publicly traded debt, the Trust Indenture Act of 1939 forbids amendments to the principal or interest provisions of the original debt contract without the unanimous consent of the bondholders (James, 1996). Even in the case of private debt, however, the potential for a holdout by any individual creditor is significant, particularly if the amount held by that creditor is small in relation to the whole. In such circumstances, the creditor knows that its recalcitrance will not be likely to damage the firm financially, and therefore no incentive exists to make the concessions necessary to renegotiate the financial status of the firm if other, larger creditors are likely to do so instead (Gilson, 1997). Thus, absent the formalized rules and procedures of the bankruptcy process, the likelihood of an efficient, private reorganization may be small, even if the direct, measurable costs of bankruptcy are greater. (Of course, this line of analysis does not consider the possibility that the firm may arrange its creditor relationships so as to maximize the potential for agreement, a point to which I shall return later.)

Notwithstanding these considerations, the expense of reorganization may be a weapon in the hands of management under certain circumstances. Because quantifiable reorganization costs are paid out of the assets of the bankruptcy estate, creditor recovery in bankruptcy will be reduced to the extent of such expenses incurred. Other things equal, then, creditors and other claimants faced with the prospect of an impending bankruptcy filing are likely to prefer to negotiate a quicker settlement outside of court. Thus, although out-of-court settlements also may implicate the holdout problem or result in other transaction costs (Gilson, 1997), the strategic threat of reorganization in the face of creditor unwillingness to bear its costs may lead to postponement of the decision to file and a corresponding increase in private negotiations. This may be especially true where the firm's management can structure its creditor relationships so as to increase the likelihood of agreement, or where the firm's solvency status makes questionable the expected value of creditor claims given incremental increases in reorganization costs. In such cases, holdout creditors are more likely to ascertain that their economic best interests lie in a reasonable and speedy resolution rather than in protracted conflict.

Of course, the question unanswered by the foregoing analysis is why creditors do not act proactively to forestall distress in the first instance. One potential answer to this question lies in the relative ability of debt to constrain managerial choice. Although accepted theory posits that debt disciplines management, requiring value-maximizing choice in order to prevent default (Harris & Raviv, 1990; Jensen, 1986), such discipline may not be sufficient to constrain managerial choice in the absence of default (Adler, 1996). That is, unless covenants are included in the debt contract, many value-destroying activities may be undertaken without triggering default, and even the inclusion of covenants may leave a range of alternative choices unaddressed. Although continual pursuit of value-destroying projects may eventually result in payment default, the point here is that absent the occurrence of default, and until default is declared, debt holders have few, if any, legal rights entitling them to exercise leverage against management. Shareholders may periodically exercise their voting rights to constrain managerial choice; bondholders, by contrast, are left only with remedial rights upon explicit default under the debt contract. Indeed, this situation may provide a partial explanation for the organizational decline literature's characterization of default as a downward spiral (D'Aveni, 1989; Hambrick & D'Aveni, 1988): insufficient power and incentives exist prior to default to enable anyone to arrest firm decline. Debate also exists as to the ability of creditors even to monitor the activities of management, given the cost of monitoring and the existence of informational asymmetries between the firm and its creditors (Nelson, 1981; Schwartz, 1989; White, 1996).

To compensate for these disadvantages, creditors may attempt to adjust their lending patterns to reflect the asymmetries involved in the exchange. For example, creditors may shorten the maturity of the contracted debt (Barclay & Smith, 1995; Goswami, Noe, & Rebello, 1995; Guedes & Opler, 1996; Jung, Kim, & Stulz, 1996) or increase the applicable interest rate or cap the dollar value of credit extended at a level below the firm's carrying capacity absent such risk factors (Bergman & Callen, 1991; Mella-Barral & Parraudin, 1997). Collateralization also is thought by some to address the informational asymmetries inherent in the debtor-creditor relationship (Jackson & Scott, 1989). Even so, with the possible exception of secured credit (Mann, 1995, 1996, 1997a, 1997b), these measures may be more effective in advancing the post-default rights and remedies of the creditor than in limiting pre-default managerial choices, including both operational decisions and capital structure adjustments designed to minimize or offset creditor influence.

Implicit in the foregoing discussion is the notion of managerial incentives and interests, a critical factor in understanding the bankruptcy decision. Managers of distressed organizations, like managers elsewhere, may derive benefits from two sources: control rents, the accumulation of salary and other benefits accruing to incumbent management as a consequence of position (Diamond, 1993; Nelson, 1981), and equity recovery, principally capital gains or, in the bankruptcy context, the realization of settlement proceeds shared with equity (Adler, 1996). Some commentators argue that managers are likely to prefer to retain control of the firm and to manage it outside of bankruptcy for as long as possible (Nelson, 1981), but this is likely to be true only of those managers with little or no equity in the firm. For managers with equity, maximum recovery will entail some combination of gains accruing from control rents and equity recovery.

However, the capture of control rents may be attenuated by displacement, which a number of studies indicate is a frequent occurrence in distressed organizations (Gilson, 1989, 1991; Gilson & Vetsuypens, 1993; Hotchkiss, 1995; LoPucki & Whitford, 1993a). For example, Gilson (1989, 1991) documents a 70% attrition rate over a four-year period surrounding the initiation of reorganization (two years prior and two years subsequent). Interestingly, his findings suggest that replacement occurs at approximately the same rate whether managers choose formal bankruptcy or opt to negotiate private workouts.

Moreover, the potentially adverse impact of bankruptcy on the careers of managers (as well as directors) must be taken into consideration. In their qualitative study, Sutton and Callahan (1987) document the stigmatic effect associated with the bankruptcy declaration, including the negative impressions developed thereby in the minds of key constituencies of the firm. Gilson (1989, 1991) also corroborates these findings, noting that none of the departing managers in his sample found comparable employment for at least three years after their dismissal. As to the directors of these firms, those associated with the organizational failure subsequently sat on a third fewer boards than before. Thus, the long-term reduction in employability must be added to the one-time loss of control rents in determining the cost-benefit ratio of a bankruptcy filing.

Other evidence on replacement, however, is equivocal. For example, Ofek (1993) was unable to replicate Gilson's (1989, 1991) findings. Given the short-term focus of Ofek's study, the author concluded that his and Gilson's work might be reconcilable if replacement were viewed as a function of creditor control at a given point in time. Thus, control may be "sticky," passing only slowly to creditors or others who possess sufficient power and legal entitlement to force the resignation of incumbent management. This provides managers a window of opportunity in the short run, and possibly a last chance to initiate a turnaround in the fortunes of the organization or, in a more negative light, to reap the benefit of control rents for some additional period.

Ofek's (1993) work implicitly suggests that control or replacement will be predicated upon the balance of forces aligned in favor of either outcome. Other obstacles, both legal and practical, may likewise shield incumbent management from involuntary departure. For example, if management succeeds in retaining control of the firm until filing a bankruptcy petition, it is by no means settled that conventional corporate governance processes will survive intact and be operational during the course of the reorganization (LoPucki & Whitford, 1993b). In the *In re Johns-Manville Corp.* (801 F.2d 60 (2d Cir. 1986)) decision, the Second Circuit Court of Appeals affirmed the discretion of bankruptcy courts to enjoin shareholder meetings during the pendency of Chapter 11 proceedings. Without the right to meet, the ability of shareholders to vote to replace incumbent management is severely minimized. LoPucki and Whitford (1993b) note as well that the only real recourse of creditors against incumbent management is to seek appointment of a trustee, but in practice this step is unlikely to succeed absent manifest fraud or abuse (Warren & Westbrook, 1986).

As for practical considerations, consider the potential costs associated with replacing existing managers, at least in terms of dislocation within the organization and the opportunity costs of time as the new recruits familiarize themselves with the firm, develop a plan of attack, and begin its implementation. In this sense, LoPucki and Whitford (1990) argue that management with generally good credentials, demonstrated past success, and the ability to generate confidence in the parties to the reorganization are likely to possess sufficient bargaining power to be given a second chance. Taken one step further, managers whose tenures are coextensive with, or greater than, critical resource suppliers may be in an advantageous position to draw upon previous good will developed during the course of the relationship (Daily & Schwenk, 1996; Pfeffer & Salancik, 1978).

Thus, the likelihood of managerial replacement is dependent upon a number of factors. Although replacement prior to the initiation of bankruptcy proceedings may be creditors' and shareholders' best option, their ability to do so may be constrained if managerial control is significant in comparison to equity concentration or creditors' rights under extant (and potentially performing) debt contracts (Ofek, 1993). Even if external constituents possess the power to replace existing management, circumstances may dictate that they delay the decision (LoPucki & Whitford, 1990). The underlying message seems to be that as long as managers can avoid formal default, and as long as power is not concentrated or, if concentrated, is balanced by countervailing managerially aligned power, replacement may be unlikely to occur. Finally, the legal questions surrounding governance in a reorganizing firm may create an incentive for incumbent management to file early rather than risk delay and eventual termination.

Indeed, the issue of managerial incentives cannot be underestimated in evaluating the bankruptcy decision. If we expect managers to maximize the sum of control rents and equity value, then external control minimization (Ofek, 1993; Pfeffer & Salancik, 1978) and the avoidance of a protracted decline in asset value (e.g., a "downward spiral" along the lines suggested by D'Aveni (1989) and Hambrick and D'Aveni (1988, 1992)) are likely to be their primary goals. For managers with equity stakes, the foregoing discussion seems to imply the efficacy of an early filing. The ability to replace such managers in bankruptcy may be minimal, and, as will be discussed below, the equity position of management may be leveraged to extract concessions from senior claimants, one of which may include retention of position. If so, the effect of long-term stigmatization identified by Sutton and Callahan (1997) is less likely to pose a meaningful disincentive to filing, because if control is retained any sanctions imposed by the external job market will be avoided. Thus, control rents themselves may be maximized by the choice of an early filing, which also precludes an extensive decline in equity value. The net result should be maximization of the recovery available to incumbent management in reorganization.

However, for management without an equity position in the distressed organization, the prospect of equity sharing or the ability to leverage an equity stake into a settlement conditioned upon job retention will be unavailable. Thus, control rent maximization is the best these managers can hope to achieve, and this in turn militates in favor of a postponed filing decision. Nothing is to be gained by an early filing but negative career effects (Sutton & Callahan, 1997). So long as the corporation's affairs can be arranged in such a way as to minimize the concentration of external power and influence (Pfeffer & Salancik, 1978), such managers may be inclined to postpone the filing decision indefinitely until firm insolvency and creditor power make replacement inevitable (Ofek, 1993). In the meantime, however, control rents will continue to accrue to incumbent executives. Note that these results are consistent with the decline-as-downward-spiral thesis of the organizational decline literature (D'Aveni, 1989; Hambrick & D'Aveni, 1988, 1992).

When and under what circumstances may equity interests participate in a reorganization settlement? As discussed in the previous section, the Code contemplates that claimants in interest will be designated within certain classes for purposes of identifying priority of claims and the distributions to which the claimants are entitled. Pursuant to the legal tradition embodied in the absolute priority rule (APR), senior claimants are to receive payment in full before junior claimants receive anything (Baird & Jackson, 1988; Jackson & Scott, 1989; LoPucki & Whitford, 1990; Weiss, 1990; White, 1989, 1996). In short, a tiered structure of rights and ownership exists, prohibiting preferential deals between senior and very junior classes that operate to squeeze out intermediate interests (*Northern Pacific Railway v. Boyd*, 228 U.S. 482 (1913)). Although the nostrum that debt precedes equity in liquidation is popular, and legally accurate, not all debt is created equal, for collateral (security) status and priority (time of perfection) affect the order and rights of claimants within the "debt" classification. Subsequent to satisfaction of these claims, equity, first preferred and then common, may share in the distribution of proceeds, assuming that no other unsecured claimants (such as judgment creditors, tort claimants, and the like) stand in line.

Such is legal theory. In practice, strict adherence to the APR may be infrequent (Weiss, 1990). As discussed above, in order for the firm to obtain confirmation of a reorganization plan, the firm's claimants must express approval. Although cramdown against dissenting junior classes is always possible, it is equally possible, if not more probable, that junior classes (especially including equity) can strategically withhold approval of confirmation pending reallocation of the proceeds of distribution. In effect, at least under certain circumstances, junior claimants may be able to extract a more favorable settlement if senior claimants can be convinced that such is the price of peace and a quick agreement (LoPucki & Whitford, 1990). Junior claimants may be particularly successful where some doubt exists as to the value of the assets being distributed, such that the expected value of the final distribution after litigating the matter is less than that of the revised settlement demanded by the junior claimants (LoPucki & Whitford, 1990). More importantly, the idea that junior claimants are entitled to protection, even when a pure asset-maximization rule based on claim seniority would dictate otherwise, was recognized by the ruling of the Second Circuit in *Committee of Equity Security Holders v. Lionel Corp. (In re Lionel Corp.)* (722 F.2d 1063 (2d Cir. 1983)). The result of this decision was to enshrine in the body of bankruptcy jurisprudence the right of equitable sharing, and hence reallocation (Jackson & Scott, 1989). And, of course, part of the settlement may include managerial retention, especially where management owns enough equity to affect the nature of the bargain.

The likelihood of reallocation, however, may be a function of various case-specific factors. For example, the size of the firm apparently is one reliable predictor of APR violation (Weiss, 1990; see also LoPucki & Whitford (1990), finding dramatic APR violations in smaller firms where managers are the predominant shareholders), as is the jurisdiction in which the case originates (Weiss, 1990). Of course, junior claimants, including equity, can be successful only if sufficient assets exist to justify equitable sharing. In this respect, it is worth noting that firm solvency is a key moderating influence; violation is far more likely to occur, and the resultant distributional excess awarded to junior classes is more likely to be larger, when the reorganizing firm is solvent or only marginally insolvent (LoPucki & Whitford, 1990). Here again is support for the proposition that managerial equity may correspond with filing prior to the onset of significant declines in asset value.

These dynamics also implicate the issue of management's ability to structure the firm's relationships with external constituents and prospective claimants, thereby influencing the balance of power in the firm and the rights of the parties involved in the reorganization. To gain insight into this issue, consider first the case of a solvent (or only marginally insolvent) firm seeking to reorganize. Assume that management has successfully avoided entering secured transactions with lenders, such that all the creditors' claims are unsecured. Even though creditors are superior in right to equity, their unsecured status, and hence their inability to claim specific assets of the firm, means that distribution is more likely to proceed equitably. (Were some claims secured, liquidation of these assets would clearly establish the rights of the secured parties to the proceeds realized from the sale.) Under such circumstances, the likelihood that equity can gain more favorable terms of distribution is enhanced.

Indeed, consider the implications of this scenario when managerial equity stakes are significant, secured claims nonexistent or minimal, and unsecured claims moderate in relation to firm asset size. Here, the potential for APR violation on terms favorable to equity carries with it the possibility of a surgical strike by management against some or all of the unsecured claimants (Nelson, 1981). Although this action may carry with it some stigmatic implications (Sutton & Callahan, 1987), consider the plight of unsecured judgment creditors or trade creditors whose power may be minimal in relation to a dominant customer (the reorganizing firm). Under such circumstances, even if those involved in the bankruptcy refuse to deal with the firm in the future, others may be more than willing to risk a relationship in the name of market share or survival.

Even where secured creditors are present, it is by no means certain that full value will be received on the secured assets. Wastage may occur between the time of the onset of distress and the declaration of bankruptcy. More particularly, however, secured creditors may be at risk on the same basis as set forth above in the case of unsecured creditors. For example, Adler (1996: p. 200) argues that

> "[b]ankruptcy reallocates broadly. Uncertain impulses favor junior claimants in negotiation and litigation. Direct provisions also reallocate through the denial of senior status either to a secured creditor who is denied pendency reimbursement [in other words, compensation for the time value of the creditor's claim], or to any creditor whose failure to contribute to a troubled debtor will result in 'equitable' subordination....In reality...the prospect of a secured creditor's partial relegation to unsecured status reduces the value of the security interest."

Adler's thesis is centered upon the uncertainty of bankruptcy outcomes, which introduce transactional inefficiencies despite rules theoretically geared to ensure equitable distribution on the basis of bargained-for risks and rewards. Secured creditors who cannot accurately predict their recovery may be as vulnerable to strategic renegotiation as unsecured creditors.

With respect to the bankruptcy decision and preferences as to continuation and control, decision points thus exist for managers, shareholders, creditors and other claimants on the basis of strengths and weaknesses present in the specific case and as a function of basic legal entitlement. As was suggested, managers can establish initial conditions for the game by adjusting the capital structure of the firm to maximize relationships with which they are comfortable and to minimize the contact points with, and power of, claimants who in most instances could be expected to threaten managerial tenure or control (Bergloff & von Thadden, 1994; Berkovitch & Israel, 1993; Bolton & Scharfstein, 1992; Dewatripont & Tirole, 1992; Diamond, 1991, 1993; Green & Juster, 1993; Harris & Raviv, 1995; Rajan & Winton, 1995).

Consideration of the implications of the firm's capital structure proceeds again from the assumption that not all debt is created equal. Most of the work emerging from the literatures of finance and financial economics cited above regards the capital structure decision from the perspective of signaling theory (e.g., Rajan & Winton, 1995), which assumes that, given informational asymmetries between management and the capital markets, the choice of specific contractual arrangements suggests something about the future prospects of the firm. (Of course, managers who recognize the informational content of their capital structure decisions will not necessarily pursue choices that exclusively accrue to their benefit, for, as Diamond (1993) notes, if "bad" firms choose the kinds of contracts that markets recognize as being typical of "bad" firms, the game is up. Therefore, such firms have an incentive to accept a mix of debt contracts, some of which are not designed to maximize control rents, in order to maintain opacity between the firm and the market with respect to the information content conveyed by such choices.) The implications of this body of work nevertheless provide insight into the question of how management might prefer to shape the capital structure of the firm.

Notwithstanding the caveats elaborated above with respect to the potentially uncertain fate of secured creditors, it is not unusual to see creditors demand security in the face of anticipated decline, on the theory that, whatever the vagaries of bankruptcy outcomes, to be secured is inherently preferable to being unsecured (Nelson, 1981). As Rajan and Winton (1995: pp. 1115-1116) note, "...the collateralization of private debt will be correlated with financial distress ... [and] the signal of borrower difficulty sent when a lender demands collateral [will be] stronger when the collateral either depreciates quickly or is quite risky in the short-run." From an operational perspective, secured debt can be expected to exert stronger claims on the firm than unsecured debt due to the existence of rights against specific assets; managerial discretion with respect to the use, possession, or sale of such assets is limited. Indeed, far from remedial rights upon liquidation or foreclosure, the principal benefit of secured credit to a creditor may lie in the leverage it confers and the ability to control or constrain managerial choice (Mann, 1995, 1996, 1997a, 1997b; Scott, 1986, 1989). "The function of secured credit is conceived...as enabling the creditor to influence debtor actions prior to the onset of business failure" (Mann, 1997b: 161, qouting Scott, 1986).

Thus, for reasons implicating both control maximization and conservation of information, managers will not willingly consent to high levels of secured debt, at least not in the absence of countervailing pressures. For example, for some companies the only alternative to default might be the acceptance of secured credit. Viewed thusly, secured credit provides a source of capital for distressed organizations and a means for such firms to protect their assets from other creditors (Mann, 1997b). It is conceivable as well that managers of distressed firms might even view inclusion of change-of-control covenants in the secured debt contract as a form of job security. If such covenants were drafted broadly enough, the efforts of third party creditors or shareholders to replace incumbent management might be subject to effective veto by the secured party, a Faustian bargain for managers but perhaps one that could postpone replacement.

Thus, management's willingness to accept secured credit may be dependent upon factors such as the financial condition of the firm and the capital alternatives available given that condition, as well as the power of other creditors and their relationships with one another and with management itself. However, if secured credit is accepted, the constraining power of secured credit (Mann, 1995, 1996, 1997a, 1997b), the nominal priority in reorganization enjoyed by the secured parties, and Adler's (1996) concern with the potential for equitable subordination argue in favor of filing prior to the onset of significant decline. In other words, secured parties are likely to preempt activities that would increase the likelihood of asset wastage and the onset of precipitous financial decline that might trigger calls for equitable subordination (Adler, 1996).

The maturity of debt contracts also has implications for managerial discretion. From the perspective of lenders, uncertainty, based on any number of dimensions, typically is answered by shortening the maturity of debt contracts offered (Barclay & Smith, 1995; Goswami, Noe, & Rebello, 1995; Guedes & Opler, 1996). Short-term debt carries the greatest incentive intensity because of the proximity of repayment and the concomitant prospect of default (Diamond, 1993), and holders of these contracts can be expected to proactively seek accommodation with respect to collateralization or priority status as a condition of extension or renegotiation (White, 1989). On the other hand, long-term debt has only limited leverage in this respect (White, 1989). Managers, particularly those in firms whose prospects are unfavorable, can be expected to attempt to avoid short-term borrowing, instead preferring long-term debt contracts (Diamond, 1993). Note in this regard that maturities may shorten as the momentum of decline increases (D'Aveni, 1989; Hambrick & D'Aveni, 1988) and as creditors become less willing to lend on long maturities (Guedes & Opler, 1996); however, this does not prevent managers from seeking long-term debt contracts *ab initio*, prior to the onset of significant decline, nor does it seem to have the effect of confining failing firms to the short end of the maturity spectrum (Guedes & Opler, 1996).

Two other elements of capital structure choice as it applies to debt contracts are the relative concentration of debt and whether that debt is publicly or privately held. In essence, public debt is more likely to be widely held than private debt, and thus the level of concentration of the former is likely to be lower than that of the latter (Gilson, 1989, 1991; Weiss, 1990). As a consequence, the power of creditors will differ, and we would anticipate that dispersed holdings would confer less leverage than concentrated holdings, at least vis-a-vis management. In this regard, Ofek (1993) showed that public debt was negatively related to the probability of managerial displacement. Such unconcentrated power might be advantageous to management in other settings, too, because complex bankruptcies with multiple debt and other claimant parties (i.e., dispersed holdings) facilitate the process of reallocation and equitable sharing (Weiss, 1990). Management, particularly management with equity, thus may gain by dispersing creditor holdings and relying on public debt offerings, thereby decreasing the likelihood of replacement and increasing the likelihood of a violation of APR in favor of junior (and perhaps more favored) claimants.

A final consideration with respect to the issue of capital structure choice relates to management's use and issuance of equity. Different classes of common stock may be issued, carrying different voting rights. The implications for control are clear, especially where public access to voting equity is restricted. More recent thought on the question of equity has focused on preferred stock, which one commentator (Mitchell, 1996) argues is the most legally disadvantaged class of equity. If we assume the veracity of the managerial control hypothesis, issuance of low voting rights common stock with preferred stock is likely to be the consequence of managerial control.

As discussed earlier, an important variable to consider in assessing the timing of the bankruptcy decision and management's incentives with respect thereto is the level of firm solvency. Because solvency affects any party's hopes of recovery, different preferences can be expected to emerge as the firm's condition declines. The first issue to be considered in this regard is the decision between liquidation and reorganization, the interests of various parties in that decision, and the ability to exercise leverage on the basis of those interests. The second issue relates to the consequences of the decision to reorganize given varying levels of firm solvency.

Recall again that in voluntary cases the debtor is given the choice between, and therefore the opportunity to strategically threaten, the use of liquidation under Chapter 7 instead of reorganization under Chapter 11. The decision to reorganize under Chapter 11 does not mean that the issue is resolved for all time, however. Even in the case of reorganization filings, the debtor may, with certain limited exceptions, convert the case to a Chapter 7 liquidation at any time; other parties (i.e., creditors and other claimants or interest holders) may seek a court order to convert upon a showing of cause. The potential to force liquidation thus provides a certain amount of bargaining leverage during the pendency of the reorganization, but, given the permissive conversion right afforded the debtor by the Code, the balance of leverage may slightly favor the debtor.

This observation, of course, begs the question regarding the interest of parties in liquidating or reorganizing. Use of liquidation as leverage can only be expected to work when the opposite party values reorganization and continuation of the business over liquidation and immediate settlement of claims. Regardless of economic costs or efficiency, labor, management, suppliers, and customers typically can be expected to prefer reorganization to liquidation (Mooradian, 1994; Nelson, 1981), as will holders of junior or unsecured claims (Adler, 1996; Jackson & Scott, 1989; Nelson, 1981), including equity. Holders of unimpaired or secured claims are more likely to view liquidation and immediate recovery as preferable to reorganization and the potential wasting of asset value (Jackson & Scott, 1989).

Of course, the use of such leverage also may depend upon the firm's relative solvency. Generally speaking, the lower the going concern value in comparison to total indebtedness, or the greater the relative degree of insolvency, the likelier that the debtor can effectively wield the threat of liquidation against its creditors and other claimants (Jackson & Scott, 1989). Given the possibility of APR violation noted above (Weiss, 1990), even in the case of secured creditors (Adler, 1996), the threat of liquidation may be a powerful weapon to force concessions from otherwise uncooperative parties, and may explain the empirical evidence suggesting that many completed reorganizations are inefficient, perhaps involving firms that should have been liquidated (Hotchkiss, 1995; LoPucki & Whitford, 1993a; Nelson, 1981; Roe, 1983). Even though managers obviously do not favor liquidation for themselves, a party's own self-interest in avoiding loss may lead it to view discretion as the better part of valor in evaluating the net payoffs to liquidation, on the one hand, and reorganization, on the other. Thus, for this reason as well as others noted above, some incentive may exist for managers in distressed organizations to engage in prepetition asset wastage. (Note here that, as was also discussed above, the ability of claimants to monitor the condition of the firm, and to forestall such asset wastage, may be questionable (Diamond, 1993; Nelson, 1981; Rajan & Winton, 1995)).

This raises the companion question of how solvency, or insolvency, affects behavior of various parties and the content and scope of managerial choice. Here, a split of opinion seems to exist in the legal literature. Adler (1996) argues that, at least with respect to managers holding equity stakes in solvent organizations, the prospect of reallocation in bankruptcy dulls managerial incentives to invest wisely and to avoid risk. In effect, for these managers, the anticipated disciplinary function of debt is lost, because managers may be able to capture control rents from the investment as well as the potential gain accruing from any subsequent success. Meanwhile, downside risk is minimized through reallocation. Although Gertner and Scharfstein (1991) reach conclusions not inconsistent with Adler's analysis, Mooradian (1994) argues that the prospect of reallocation operates to suppress risky investment, while LoPucki (1993) posits that managers who own equity in insolvent firms are likely to engage in risky investment activity, for many of the same reasons that Adler argued were applicable to managers of solvent firms.

Given much of the discussion set forth above, it may be that both perspectives are correct if we assume, first, that managerial equity is significant in relation to other concentrations, and second, that the case of solvent firms involves some element of prospective and foreseeable decline, consistent with the downward spiral (D'Aveni, 1989; Hambrick & D'Aveni, 1988) and asset wastage scenarios developed earlier. Under such circumstances, the anticipation of reallocation may operate to increase risky investments, Mooradian (1994) notwithstanding. The distinction, then, lies not between solvency and insolvency, but rather between decline and insolvency, with the pace of risky investment increasing as firm value falls.

On the other hand, for managers without equity positions, and for whom reallocation is immaterial, solvency may be viewed as something to be protected, while insolvency may foster a "nothing to lose" attitude. Other things equal, investment risk would increase in the latter condition but not the former Thus, the anticipated incentive intensity of debt (Jensen, 1986), including the tendency of debt to reduce overinvestment albeit at the cost of some degree of underinvestment (Stulz, 1990), may hold among distressed firms whose managers lack equity stakes.

Regardless of managerial proclivities, creditors clearly become increasingly powerful as the firm draws nearer to default or the maturity dates of outstanding debt. While this observation implicates the creditor priority issues discussed above, in the present context of solvency the issue of managerial alignment should be considered. Specifically, under what conditions of solvency will managers favor shareholders or debtholders? What legal obligations does management bear to each?

Clearly, management and directors owe a fiduciary duty to shareholders. But at least one court has ruled that a bankrupt entity, operating as debtor-in-possession, is a trustee of the bankruptcy estate, suggesting a wider scope of obligation (*In re Seeburg Products Corp.*, 215 Bankr. 175 (Bankr. N.D.Ill. 1997). More importantly, an apparently widespread rule exists among both federal and state courts that when a firm reaches an insolvent condition, fiduciary duties shift to protection of creditor interests (see, e.g., *Credit Lyonnais Bank Nederland, N.V. v. Pathe Communications Corp.*, 1991 WL 277613 (Del. Ch. Dec. 30, 1991), concluding that fiduciary duties exist to creditors, not shareholders, when the debtor is in the vicinity of insolvency; see also *Clarkson Co. Ltd. v. Shaheen*, 660 F.2d 506 (2d Cir. 1981); *In re Kingston Square Associates*, 214 Bankr. 713 (Bankr. S.D.N.Y. 1997); *Geyer v. Ingersoll Publications Co.*, 621 A.2d 784 (Del. 1992); *Tampa Waterworks Co. v. Wood*, 97 Fla. 493, 121 So. 789 (Fla. 1929); *Franks v. United Jersey Bank*, 87 N.J. 15, 452 A.2d 814 (N.J. 1981)). Indeed, LoPucki and Whitford (1993a) found empirical evidence of a managerial tendency to align with either shareholders or creditors on the basis of the solvency of the firm. In insolvent organizations, managers were more likely to align with creditors, while managers of solvent firms never did so, instead aligning with shareholders. These results appear to be attributable to the relative power of the parties over the reorganization process and the tendency of management, in maximizing its position, to align with such parties.

In terms of operational and strategic consequences, the nature of managerial alignment will manifest itself in changes in portfolio composition. Alignment with creditors is likely to result in asset liquidation (as a means of ensuring repayment), and avoidance of higher-risk activities such as expansion of current businesses, entry into new businesses, or acquisitions of unrelated businesses (LoPucki & Whitford, 1993a; Ofek, 1993). Significantly, Ofek (1993) found that high levels of managerial equity holdings, presumably indicating managerial-shareholder alignment, were associated with decreased levels of operational restructuring in distressed organizations.

Before attempting to summarize the literature, one final issue relevant to managerial discretion and incentives in distressed firms, specifically the survivability of managerial employment contracts, is worthy of note. Section 365 of the Code provides the debtor the right to affirm or reject executory agreements or leases, i.e., those agreements whose obligations remain uncompleted (for a thorough treatment of this subject, see Westbrook (1989)). Managerial employment contracts are included among the agreements that may be rejected by the debtor firm, assuming, of course, replacement of the executives covered by such contracts (given that surviving executives are unlikely to reject their own contracts). The consequences for the manager-beneficiaries may be severe, for thereafter these managers are relegated to unsecured creditor status to the extent of contractual damages claimed. Moreover, under Section 502(b)(7), such claims are limited to one year of postpetition damages. (See also *In re Mammoth Mart*, 536 F.2d 950 (1st Cir. 1976), holding (under the old Bankruptcy Act) that employee severance claims under contractual agreements are entitled to priority only to the extent service is rendered to the bankrupt entity, i.e. occurs postpetition.) Clearly, the implication of these provisions is to discourage bankruptcy filings by executives with long-term agreements, particularly where such executives cannot reasonably expect to remain in control of the bankruptcy process or their jobs, and especially among the class of debtor organizations whose financial condition is weak and whose unsecured claimants, such as discharged executives seeking recovery under rejected employment contracts, are therefore less likely to recover anything approaching the full value of their claims.

This review of the literatures of law and finance with respect to organizational decline and the bankruptcy decision has attempted to capture the dynamics of the process and the implications of the law of bankruptcy for managerial choice and strategic prerogative. The topic is a complex one, but in essence reduces to the question, Why do some firms file for bankruptcy protection, while others that are similarly situated postpone or avoid the decision? Analysis of bankruptcy outcomes suggests that the long-term success of reorganized firms may be minimal (LoPucki & Whitford, 1993a; Moulton & Thomas, 1993), perhaps as much so as that of firms continuing to operate outside of bankruptcy but subject to severe financial limitations. On this basis, then, little distinction between the two choices appears to exist, and neither serves as a likely justification for either course of action.

Viewed from a different perspective, that of the time of filing, differences seem to emerge. Although limited, some empirical evidence appears to support the notion that delay in filing is common (Nelson, 1981), and that, when firms do file, they will do so either when their conditions are relatively suitable to reorganization, or when little is left but to liquidate the firm (White, 1996). Both theses are premised on the inability of creditors and other claimants to monitor and control the activities of the debtor organizations effectively, and both are consistent, as pointed out several times, with the downward spiral of decline elaborated by D'Aveni (1989) and Hambrick and D'Aveni (1988).

This last observation seems to be the unifying thread of all of the literature discussed herein. Amid the myriad of incentives and cross-influences playing through the organizational decline scenario and the ultimate decision whether to declare bankruptcy, the prospect of control of the organization's direction is a recurring theme.

Executives, of course, are at the center of this drama, serving as de facto intermediaries between competing interests external to the firm while also possessing the ability to advance their personal interests. The latter may only be short-term, especially if replacement is seen as inevitable, but they cannot be discounted.

The remainder of this work thus examines the decision to file from the perspective of control. Broadly speaking, those organizations subject to executive control are likely to be those that postpone the decision to file until the extent of decline is so severe that liquidation is the only option. Alternatively, under circumstances where managers can expect to retain control of the firm and profit via equity participation in the reorganization settlement, executive control may lead to quick filing, before the onset of severe distress. Different patterns can be expected in the presence of creditor control or significant equity concentration. A brief overview of the strategic management literature investigating decline and bankruptcy is provided in the following section, after which the theory and hypotheses underlying the study will be discussed.

Strategic Management Bankruptcy Research

Strategic management research into organizational decline has proceeded along two different tracks, one dedicated to the processes and dynamics of decline (D'Aveni, 1989; Hambrick & D'Aveni, 1988, 1992), and the other to the antecedents and outcomes of bankruptcy (Daily, 1995, 1996; Daily & Dalton, 1994a, 1994b, 1995; Moulton & Thomas, 1993). The work of D'Aveni (1989) and Hambrick and D'Aveni (1988, 1992) has been cited and discussed several times throughout the previous sections, and does not require extensive elaboration here. In general, these studies show that organizational decline develops momentum over time as resources are depleted at an ever-increasing rate. As a consequence, the firm's competitive position weakens continuously, with each step of the decline process contributing to and exacerbating the subsequent step.

Several studies have been concerned with the antecedents of bankruptcy (Daily, 1996; Daily & Dalton, 1994a, 1994b, 1995), and particularly with governance structures associated with the incidence of filing. Thus, using a sample of firms from 1972 to 1982, Daily and Dalton (1994a) found that bankrupt firms were more likely than surviving firms to have CEOs serving simultaneously as board chair ("CEO duality"), and also had higher proportions of affiliated directors serving on their boards. However, using a sample of firms from 1990, the same researchers (1994b) failed to duplicate these results. In a separate study, Daily and Dalton (1995) established that bankrupt firms exhibited higher rates of CEO and director turnover than surviving companies, but that such turnover did not result in enhanced external control or monitoring. Finally, Daily (1996) also examined the composition of board committees and found that this factor had little or no predictive potential. However, looking at outcomes, Daily did discover some support for the existence of a negative relationship between the proportion of affiliated directors serving on the firm's audit committee and the time spent in reorganization.

In addition to this portion of Daily's 1996 study, two other studies examined reorganization outcomes (Daily, 1995; Moulton & Thomas, 1993). Moulton and Thomas (1993) considered the possibility of strategic filings, in other words those bankruptcy petitions filed with the intent to eliminate certain claims against the firm. Their conclusion was that the prohibitive cost of bankruptcy and the imposition of court supervision substantially negated any benefits accruing to the firm from claim elimination. Daily (1995) then employed the Moulton and Thomas (1993) sample to examine the link between governance characteristics and reorganization success, and found evidence of CEO duality effects.

Although this body of work provides some insight into corporate bankruptcy, many questions are left unanswered. Chief among these is the difference between firms that file and firms that don't even though they bear debt burdens similar to the filing firms. Although Daily's (1995, 1996) and Daily and Dalton's (1994a, 1994b, 1995) work matched bankrupt and surviving firms, the matching process they employed was based upon industry and size, measured as assets and employees. This protocol does not establish correspondence of financial distress. Is there a difference, though, between firms equally distressed? The present study seeks to investigate this question.

The following section builds upon the literature from law, finance, and strategic management discussed in this section to develop the hypothesized relationships analyzed in the balance of the study. Competing theoretical lenses will be discussed that organize the findings from the legal and financial literatures in support of these hypotheses. As will be shown, in several instances the theories relied upon can be integrated, while in others they will stand as competing explanations. With respect to such theoretical perspectives, an additional goal of this research is to advance understanding of the potential applicability of these theories, and to indicate where one may be superior to another, or when integration provides a richer explanation of subject phenomena.

Theoretical Perspectives and Hypotheses

The previous section covered the mechanics of bankruptcy and the literature of law and finance relating thereto. This review provides a background against which conclusions can be drawn regarding the dynamics of organizational decline and the bankruptcy decision, especially the incentives of various parties involved and their respective abilities to influence the organization's trajectory. The present section is intended to survey the theoretical frameworks that, together with the insights drawn from the body of literature cited above, permit the development of the hypotheses that will be investigated in the balance of this research.

The theoretical foundations to be utilized in conducting the study include the resource-based theory of the firm (Barney, 1986a, 1991; Wernerfelt, 1984), agency theory (Fama, 1980; Fama & Jensen, 1983a, 1983b; Jensen & Meckling, 1976), and resource dependence theory (Pfeffer & Salancik, 1978). Because both agency theory and resource dependence theory share common elements as applied to the present study, in particular concern with discretion and control or influence, they will be considered together below, following initial consideration of the resource-based theory of the firm. In general, this research will evaluate the contrasting predictions of these two perspectives, with the purpose of enriching our understanding of the dynamics of the bankruptcy decision, and, from a theoretical perspective, contributing to our knowledge of the explanatory power, and the relative applicability of, each of these theories within the context of organizational decline.

The Resource-Based Theory of the Firm

The resource-based theory of the firm ("RBT") is concerned with the internal accumulation of assets (Peteraf, 1993) and the extent to which such individual resource endowments are "tied semipermanently to the firm" (Wernerfelt, 1984: p. 172; see also Peteraf, 1993; Williamson, 1985). Thus, sustainable competitive advantage is seen as a function of the firm's resource endowments, to the extent that such endowments consist of assets that are valuable, rare, imperfectly imitable, and immune to the creation, development or acquisition of substitute factors that are themselves valuable, rare and imperfectly imitable (Barney, 1986a, 1991, 1994; Oliver, 1997; Penrose, 1959; Schoemaker & Amit, 1994). This restriction is imposed because under any other circumstances, the firm's competitors can be expected to replicate its capabilities and thereby negate any interim advantage created as a result of those capabilities (Barney, 1991; Oliver, 1997; Peteraf, 1993).

As explained by Barney (1991), valuable assets are those which "enable a firm to conceive of or implement strategies that improve its efficiency and effectiveness" (Barney, 1991: 106), and which therefore facilitate the firm's exploitation of opportunities and the minimization of threats. However, value is a necessary but not sufficient condition for competitive advantage because numerous firms, indeed perhaps all firms, possess assets that could be considered "valuable" under this definition. Given replicability concerns (Barney, 1991; Oliver, 1997; Peteraf, 1993), firm resources also must be rare and imperfectly imitable. Three reasons are advanced to explain the latter:

> "(a) the ability of a firm to obtain a resource is dependent upon *unique historical conditions*, (b) the link between the resources possessed by a firm and a firm's sustained competitive advantage is *causally ambiguous*, or (c) the resource

> generating a firm's sustained competitive advantage is *socially complex* (Dierickx & Cool, 1989)." (Barney, 1991: 107; emphasis in original.)

The essence of these observations is the notion that competing firms cannot observe, discern, or otherwise determine the nature, composition, or use of the assets possessed by the firm, and therefore cannot acquire or replicate them.

Finally, even assuming all of the foregoing conditions are satisfied, sustained competitive advantage cannot be realized unless the underlying assets also are immune to substitution. That is, even if specific rare and inimitable assets cannot be acquired or developed by competitors, those competitors may be able to "substitute a similar resource that enables [them] to conceive of and implement the same strategies" or to employ different resources that achieve similar results (Barney, 1991: 111-112).

Thus, if the firm is able to identify and develop assets that satisfy the conditions just stated, sustainable competitive advantage will result, and with it the ability to generate economic rents (Conner, 1991; Peteraf, 1993). Assets capable of producing such results may include "all assets, capabilities, organizational processes, firm attributes, information, knowledge, etc. controlled by a firm that enable the firm..." (Barney, 1991: 101). For purposes of analysis, such assets can be thought of as belonging to broader categories that vary with respect to their expected level of specificity, and therefore suitability for competitive advantage (Barney, 1991; Bergh, 1998): physical, human, organizational, and financial capital. Physical and organizational capital, because tied to the firm, represent the most specific asset bases (Williamson, 1975), while financial capital, because of easy replicability, represents the least specific asset base (Bergh, 1998). Human capital is subject to integration difficulties and can be considered firm specific only to the extent that the firm is able to retain key employees and their knowledge and skill bases (Coff, 1997).

While a significant body of literature has developed to investigate these issues (Andrews, 1971; Barney, 1986a, 1986b, 1991, 1994; Bergh, 1995, 1998; Castanias & Helfat, 1991; Chatterjee & Wernerfelt, 1991; Conner, 1991; Dierickx & Cool, 1989; Lippman & Rumelt, 1982; Mahoney & Pandian, 1992; Montgomery & Wernerfelt, 1988; Nelson & Winter, 1982; Oliver, 1991; Penrose, 1959; Peteraf, 1993; Rumelt, 1984, 1987; Teece, 1980, 1982; Wernerfelt, 1984; Williamson, 1975, 1985), more recent thought has focused on the utilization of assets, in addition to possession. In this view, endowment alone is insufficient to explain competitive advantage; rather, effective deployment and utilization, including the firm's distinctive processes of combination and coordination are key determinants of organizational ability (Mehra, 1996; Teece, Pisano, & Shuen, 1997). Thus, in many cases the firm must exploit a combination of assets, each offering some benefit and synergistic potential when integrated.

Bergh (1995) relied upon much of this reasoning to argue that the resource stock of the firm could be employed in order to obtain two different kinds of economic benefits: 1) cooperative and strategic, and 2) competitive and financial (see also Hill, Hitt, & Hoskisson, 1992; Hoskisson, Hill, & Kim, 1993). The former is based upon the opportunity to share specialized resources, while the latter arises from internal capital market efficiencies, or the ability to reallocate capital more efficiently than through external investments. Bergh (1995) then posited that related diversification facilitated the sharing of specialized resources, and therefore the development of inimitable competencies, while unrelated diversification, even if realizing significant financial economies, would not lead to the creation of such resources (Bergh, 1995, 1998). In the case of the latter, any firm engaging in unrelated diversification could achieve similar results; financial economies are simply not sufficiently specialized to confer competitive advantage.

In the context of distressed organizations, this conceptualization of diversification strategy has interesting implications. At first glance, it might seem that an organization's inability to remain competitive in a given business line would militate in favor of unrelated diversification. Moreover, environmental conditions might also be unfavorable in the incumbent industry, providing further support for entry into unrelated business segments. Bergh's (1995) hypothesis, however, argues against this rationale, instead suggesting that distressed organizations can best remain competitive, and indeed enhance competitiveness, by diversifying into related business segments and developing shared competencies. Thus, as between bankrupt firms and surviving firms, the extent of related or unrelated diversification each enacts should be a distinguishing characteristic. Given Bergh's (1995) reasoning, bankrupt firms should exhibit low levels of related diversification and high levels of unrelated diversification, while the converse should be true of surviving firms.

Hypothesis R1a: *Related diversification will be negatively related to filing.*

Hypothesis R1b: *Unrelated diversification will be positively related to filing.*

Returning to the organizational decline literature, one of the messages of D'Aveni's (1989) and Hambrick and D'Aveni's (1988) work is the accelerating pace of decline, accompanied by rapid resource depletion. Bankruptcy, then, can also be seen as a function of extreme distress brought about by insufficient resources, of any kind or nature. Firms with adequate resource endowments can survive outside of bankruptcy, while those weakened by protracted decline cannot; indeed, if the message of RBT is that possession, identification, and exploitation of strategic assets yields sustainable competitive advantage and economic rents, the phenomenon of organizational decline and bankruptcy, suggesting the absence of such factors, by definition indicates the absence of, or the failure to leverage, strategic assets.

An even more interesting perspective emerges, however, if we consider again the asset combination argument of Mehra (1996) and Teece, et al. (1997). Based on these authors' reasoning, bankrupt firms are those lacking not only sufficient endowments, but also efficient process coordination or adequate combinations of assets. Indeed, the latter may be the only truly necessary condition for bankruptcy.

In a similar vein, Platt (1985) hypothesizes that bankruptcy risk increases as the firm accumulates too many current assets or too many fixed assets. Acceptable levels of performance require some mix of the two. Based upon this reasoning, the relationship between bankruptcy and the firm's asset balance can be captured in measures of liquidity, or the extent of liquid or fixed assets in the organization's portfolio. Among distressed organizations, we can easily imagine liquidity being a paramount concern, and thus a firm's ratio of current assets to total assets is likely to be negatively related to filing. Platt's (1985) argument, however, suggests the need to consider fixed and current asset balance in addition, and thus, in keeping with the liquidity premise just stated, we can expect that firms with high ratios of current to fixed assets will be more liquid and more likely to survive than those with low ratios of current to fixed assets.

Hypothesis R2: *The firm's ratio of cash and cash equivalents to total assets will be negatively related to filing.*

Hypothesis R3: *The firm's ratio of current assets to fixed assets will be negatively related to filing.*

Finally, consider the composition of the firm's board of directors and its level of equity concentration. Studies of bankrupt firm boards in the finance and strategic management literatures have documented the decrease in board size and outside representation as the firm draws nearer to bankruptcy declaration (Daily & Dalton, 1994a, 1994b; Gales & Kesner, 1994; Gilson, 1990). Most of these have approached the issue from the perspective of resource dependence theory (discussed below), on the theory that appointment of outsiders permits the firm to manage interdependencies and to gain access to critical resources (Daily & Dalton, 1994a). The latter observation implicates resource-based theory as well, particularly if we take cognizance of Gilson's (1990) study of bankrupt and reorganizing firms, which demonstrated that equity concentration often is transferred to major creditors, who frequently appoint a new board thereafter. Significantly, such concentrations were higher among the reorganizing (i.e., nonbankrupt) firms than among the bankrupt firms.

The implication for resource-based theory is that the presence of significant investors, especially if represented on the board of directors, may correlate with a flow of resources to an otherwise struggling organization. If so, the more creditor or shareholder representatives appointed to the board, the less likely the firm will be to seek bankruptcy protection.

Hypothesis R4: *The ratio of investor or creditor board representatives to total directors of the board will be negatively related to filing.*

Agency Theory and Resource Dependence Theory

Agency theory and resource dependence theory are considered together here because, as mentioned above, both arguably are concerned with power over and control of firm-level decisions. More than RBT, these perspectives are directly concerned with the issues discussed in the review of the legal and finance literatures, to the extent bankruptcy and the dynamics of organizational distress and decline can be viewed in terms of who influences decision making and whose interests are served by filing or avoiding bankruptcy.

Thus, contrary to RBT, the following hypotheses suggest that the filing decision is not purely a function of solvency (adequate resources), but rather encompass a range of issues relating to the interaction of various parties to firm decline. Thus, comparing the results of the two sets of hypothesized relationships may shed light on the explanatory potential of the two bodies of theory, as well as their complementarity. The discussion to follow will elaborate the bases of agency and resource dependence theory, respectively, and will then develop the hypotheses for study. Throughout, a negative relationship between solvency and filing is assumed, without direct hypothesis or test; that is, firms with at least adequate levels of solvency generally avoid bankruptcy, while those whose solvency has seriously deteriorated are more likely to file. The questions investigated in this section ask whether moderating influences exist.

Agency theory (Fama, 1980; Fama & Jensen, 1983a, 1983b; Jensen & Meckling, 1976) is concerned principally with the separation of ownership from control in the modern public corporation (Berle & Means, 1932), and the effect of this separation on managerial incentives to maximize shareholder wealth (Jensen, 1989). Specifically, the theory examines the nature of the relationship between a party who delegates work to another (the principal) and the party to whom that delegation is extended (the agent). Jensen and Meckling (1976) describe the agency relationship of shareholders and managers as one premised on contractual understanding. The fundamental problem to be solved, typically through the design of effective contractual mandates, is the divergence of or conflict between the desires and goals of the parties to the exchange, and the imposition on the principal of nontrivial costs in the course of monitoring the behavior of the agent (Eisenhardt, 1989). Thus, a central tenet of the theory holds that absent effective controls or the development of adequate incentive systems, managers may be tempted to pursue strategic objectives that more closely accord with their individual interests than with those of shareholders (Walsh & Seward, 1990).

A substantial body of literature has attempted to address the question of proper incentive alignment and control, and in actuality two distinct streams have emerged (Beatty & Zajac, 1994; Eisenhardt, 1989). As summarized by Beatty and Zajac (1994: 313), these include:

> "...a normative principal-agent literature that emphasizes the design of compensation contracts with optimal risk-sharing properties (see Levinthal, 1988 for a review) and a positive, empirically based, agency literature that focuses primarily on questions relating to the separation of corporate ownership and control and the role of boards of directors (Fama & Jensen, 1983[a]; Weisbach, 1988; Morck, Shleifer & Vishny, 1989)."

Both Eisenhardt (1989) and Beatty and Zajac (1994) observe the tendency in the organizational science literature to concentrate primarily upon the latter aspect of agency theory. This research follows the latter stream, but also investigates the former to the extent that, as documented above in the discussion of bankruptcy law and its attendant incentives, managerial employment contracts and equity positions can be expected to influence the bankruptcy decision.

Turning to the specifics of the incentive alignment (or normative) research stream, agency theory presumes that ownership by firm insiders bonds the interests of executives with those of shareholders at large (Fama & Jensen, 1983b; Hoskisson, Johnson & Moesel, 1994; McConnell & Servaes, 1990; Morck, Shleifer & Vishny, 1988), because decisions and strategies designed to maximize shareholder value redound to the benefit of both external owners and executives themselves. Simple self-interest on the part of executives thus serves the broader purpose of organizational wealth maximization. However, such insider concentration has its limits, as studies by McConnell and Servaes (1990) and Morck, Shleifer, and Vishny (1988) show: beyond some level, executives amass too much influence and/or become too risk averse to invest efficiently and maximize shareholder wealth.

On the other hand, in the positivist literature, control is seen as a function of the empowerment of external parties in their interrelationship with incumbent executives. In particular, ownership concentration, whether vested in institutions or other large investors (commonly referred to as "blockholders"), is assumed to result in increased monitoring of the activities of managers, given that monitoring costs decrease with increases in share concentration (Alchian & Demsetz, 1972). Given the lower monitoring costs and higher voting power of significant concentrations, such investors are more likely than atomistic shareholders to influence managerial decisions and to ensure that wealth-maximizing actions are taken (Hill & Snell, 1989; Hoskisson, Johnson, & Moesel, 1994; Rediker & Seth, 1995).

Ensuring that the firm's board of directors is comprised primarily of outside parties with no affiliation with incumbent management also is assumed to yield improved monitoring of executive actions (Baysinger & Hoskisson, 1990; Daily & Schwenk, 1996; Fama & Jensen, 1983a, 1983b; Johnson, Daily, & Ellstrand, 1996). Although Baysinger and Hoskisson (1990) argued that effective boards should include at least some insiders in order to ensure adequate firm-specific knowledge and information flows, and although questions exist as to the true independence of outsiders from the managers who typically nominate them (Daily & Schwenk, 1996), the common assumption is that outsiders are more likely than insiders to challenge executive decisions and to demand accountability of incumbent management (Fama & Jensen, 1983a, 1983b).

In contrast to agency theory, resource dependence theory (Burt, 1983; Pfeffer & Salancik, 1978; Selznick, 1949) examines the extent to which some external constituents have the capability to influence management through the provision of critical resources. To the extent the firm is dependent upon certain suppliers, be they suppliers of labor, capital, resource inputs, or any other external resource, the organization's discretion may be circumscribed. The resource dependence perspective is thus similar to agency theory's emphasis on control and limitation of managerial choice, but is distinct in viewing such control as a function of a potentially larger body of interested parties. For example, agency theory is concerned with shareholder voice, whereas resource dependence would include others in addition to shareholders, many of whose agendas may be at odds with shareholders, management, or other constituents.

Given this last observation, resource dependence theory also is concerned with the extent to which management balances the demands of external constituents. In some instances, this may require sequential deference to the wishes of such constituents, while in others management may be able to balance one set of demands against another (Pfeffer & Salancik, 1978). The latter is more likely to be possible, as will outright defiance of external claims, when constituent influence is dispersed rather than concentrated (Pfeffer & Salancik, 1978; Thompson, 1967). Thus, careful management of firm-constituent relations may enable managers to pursue their own agendas notwithstanding those of external resource suppliers.

Combining these perspectives with those of the law and finance literatures yields a framework centered upon identification of the party in control of the bankruptcy decision and its timing. Viewed in this light, the agency and resource dependence hypotheses developed below argue that solvency is not a sufficient condition to predict the incidence of bankruptcy, in contrast to the fundamental RBT predictions. Because of the interests of the various parties to the decision, their relative rights and legal entitlements at given points in time, and managerial ability to influence the identity of such parties and their legal positions, the filing decision may occur under various conditions of solvency. Consequently, the exogenous variables of interest can be expected to moderate the relationship between solvency and the filing decision.

Consideration of these issues begins with executive stock ownership. Although generally viewed as a positive development from the standpoint of incentive alignment (e.g. Jensen & Meckling, 1976), some studies indicate negative value effects at high levels of executive ownership (McConnell & Servaes, 1990; Morck, Shleifer, & Vishny, 1989). Thus, either low or high levels of executive ownership may be problematic from the perspective of monitoring and control of executive prerogative. Given agency theoretical presumptions regarding the behavior of entrenched and powerful executives (Fama, 1980; Fama & Jensen, 1983a, 1983b; Jensen & Meckling, 1976), attempted maximization of control rents can be expected where management is unaccountable to shareholders or other external constituencies (Diamond, 1983). In the context of organizational decline, a key consideration of executives such as these, then, is the ability to retain control of the firm for as long as possible, thereby avoiding a bankruptcy petition, or filing preemptively at a time when executive influence is at its zenith in order to control the outcome of the ensuing reorganization (Nelson, 1981; White, 1996).

As discussed above, the solvency of the firm is likely to be a key factor in the decision to file and the timing of that decision. For example, the expectation of violation of absolute priority (Weiss, 1990) can be expected to have different consequences for executive incentives in conditions of high solvency than in low solvency, particularly if such executives own stock in the firm (Adler, 1996). Because equity sharing appears to be maximized under conditions of high solvency, and because such conditions also are likely to confer maximum long-term control rent appropriation, high insider equity concentration is likely to be associated with early filing.

By contrast, if executive ownership is minimal, less incentive exists to file and attempt to extract a settlement from creditors; instead, management's base objectives will be maximizing job security and, ultimately, prolonging the period of control rent appropriation (Amihud & Lev, 1981; Diamond, 1993). Longer-term decline, consistent with D'Aveni (1989) and D'Aveni and Hambrick's (1988) findings, is likely to be observed in order to fulfill these objectives, as well as to avoid the stigmatic effects of filing (Sutton & Callahan, 1987). Even if replacement follows, such executives will have maximized their personal utilities for as long as possible under this scenario.

> **Hypothesis A1:** *Managerial equity will moderate the negative relationship between firm solvency and bankruptcy, such that when managerial equity is low the relationship between solvency and bankruptcy will be more negative than when managerial equity is high.*

Similarly, in the case of outside equity ownership, particularly that held by institutions and significant block owners (Baysinger, et al., 1991; Hill & Snell, 1988), filing is likely to occur when the firm is relatively more solvent. Not only can significant outside equity owners exert influence over the bankruptcy proceedings, and ultimately obtain some share of settlement proceeds (Weiss, 1990), but early filing also has the effect of constraining management and minimizing control rent appropriation (Diamond, 1993). Thus, this outcome is consistent with an agency theoretical perspective on managerial accountability (Jensen & Meckling, 1976) and the effects of ownership concentration (e.g., Baysinger, et al., 1991; Hill & Snell, 1988).

> **Hypothesis A2**: *Outside equity will moderate the negative relationship between firm solvency and bankruptcy, such that when outside equity is low the relationship between solvency and bankruptcy will be more negative than when outside equity is high.*

The effect of outside board representation on the filing decision may be somewhat less clear. Here, outside directors are defined as those directors who are independent of management, creditors or significant shareholders (Gilson, 1989, 1990). Ordinarily, such directors are presumed to be the ideal with respect to monitoring and control of management on behalf of shareholders (Cochran, Wood, & Jones, 1985; Gilson, 1990).

However, other work has posited more ambiguous effects relating to outside director dominance (e.g., Baysinger & Hoskisson, 1990). Given this, and in light of the findings suggesting directorial displacement in troubled firms (Gales & Kesner, 1994; Gilson, 1989, 1990), it would not be surprising if such outsiders were to give greater weight to the effects of bankruptcy on their own reputations than to the prospect of equity sharing. Even though turnover eventually can be expected to occur, the lesson from the research seems to imply that significant declines must occur first, thereby reducing the efficacy of a quick filing (Gilson, 1989, 1990). Outside directors thus are likely to play for time to effectuate a turnaround.

> **Hypothesis A3**: *Outside director representation will moderate the negative relationship between firm solvency and bankruptcy, such that when outside director representation is low the relationship between solvency and bankruptcy will be less negative than when outside director representation is high.*

With respect to investor representation on the board, the incentives to file likely will mirror those associated with outside equity owners. Investor representation is used here to denote board members with an employment or other relationship with a significant equity holder (Gilson, 1990). Such directors can be expected to push for early resolution of financial distress in order to maximize equity recovery (Weiss, 1990) and minimize managerial control rents (Diamond, 1993; Jensen & Meckling, 1976).

> **Hypothesis A4**: *Investor board representation will moderate the negative relationship between firm solvency and bankruptcy, such that when investor board representation is low the relationship between solvency and bankruptcy will be more negative than when investor board representation is high.*

Given the nature of the reorganization process, creditor interests also must be considered in any analysis of corporate control and the bankruptcy decision. Indeed, in the context of organizational decline and bankruptcy, legal authority may require expansion of traditional notions of firm governance and a corresponding adjustment of managers' fiduciary duties (Brunstad & Sigal, 1999). Beginning with board representation, creditors can be expected to use their board positions to push for an early filing. For example, some authority suggests that, depending upon their security status, creditors may generally prefer prompt liquidation to a reorganization in order to recoup their investment in the firm (Jackson & Scott, 1989). Although creditors may not obtain additional settlement shares, contrary to the case with equity, and indeed may be the transferor of such settlements, an early filing nevertheless eliminates the prospect of prolonged decline (Hambrick & D'Aveni, 1988) and managerial control rent appropriation (Diamond, 1993). Directors representing creditors are thus likely to attempt to influence the bankruptcy decision in favor of an early filing.

> **Hypothesis A5**: *Creditor board representation will moderate the negative relationship between firm solvency and bankruptcy, such that when creditor board representation is low the relationship between solvency and bankruptcy will be more negative than when creditor board representation is high.*

Regardless of board representation, secured creditors or the holders of short-term, or current, indebtedness of the firm are likely to be able to influence the bankruptcy decision. Secured creditors are among the highest priority claimants against the bankrupt organization, and thus can exert substantial leverage against management merely by virtue of the threat of asset liquidation rather than actual recourse to such remedies (Mann, 1995, 1996, 1997a, 1997b; Scott, 1997). Likewise, short-term creditors possess significant power over the debtor and can act to enforce their control prerogatives as the price for any subsequent extension of the term of the indebtedness (White, 1989). The price of the firm's failure to accede to such demands is immediate default and a probable liquidity crisis. As alluded to above, secured creditors in particular may be more willing to countenance a liquidation or rapid settlement because their claims are relatively more protected than those of other claimants, even from the prospect of equity sharing (Weiss, 1990). Thus, both secured creditors and the holders of the firm's short-term indebtedness are likely to see their prospective recovery maximized by an acceleration of the filing decision.

> **Hypothesis A6**: *The percentage of secured debt in the firm's capital structure will moderate the negative relationship between firm solvency and bankruptcy, such that when such percentage is low the relationship between solvency and bankruptcy will be more negative than when it is high.*

> **Hypothesis A7**: *The percentage of current debt in the firm's capital structure will moderate the negative relationship between firm solvency and bankruptcy, such that when such percentage is low the relationship between solvency and bankruptcy will be more negative than when it is high.*

Finally, the length of the CEO's employment contract may be a factor in the filing decision. Given the limitations on potential recovery under executory contracts discussed above, the length of time remaining on the executive's contract is likely to be negatively related to the incidence of filing among firms with high levels of inside equity ownership. Other things equal, such executives will prefer filing when little or no time remains on extant employment contracts, so that no loss of contract accruals is risked in the reorganization proceedings. Note here the presupposition that high inside equity may not redound to the benefit of shareholders generally (McConnell & Servaes, 1990).

However, where outsiders control a significant share of the organization's equity, the opposite result is likely to obtain. As suggested above with respect to Hypothesis A2, these parties generally can be expected to push for quick filing rather than permit executives to delay filing and reduce firm asset value. When a CEO's employment contract is entered into the calculus, this proclivity is likely to be enhanced, for early filing not only prevents executive control rent appropriation but also may facilitate the cancellation of long-term employment contracts. Thus, the longer the executive's contract, the more likely outside shareholders are to seek rapid bankruptcy resolution.

> **Hypothesis A8a:** *The length of time remaining on the CEO's employment contract will moderate the relationship between inside equity ownership and filing, such that when inside equity is high, filing will be less likely when the contract term is long than when it is short.*

> **Hypothesis A8b:** *The length of time remaining on the CEO's employment contract will moderate the relationship between outside equity ownership and filing, such that when outside equity is high, filing will be more likely when the contract term is long than when it is short.*

This concludes Chapter 2 and the consideration of the hypothesized relationships to be tested in the course of this research. Discussion will turn in Chapter 3 to the methodology utilized in the study.

CHAPTER 3

METHODS

The following sections discuss sample identification, operationalization of the variables employed in the study, and the methodology applied to the hypotheses proposed in Chapter 2.

Sample

The sample for the present study is comprised of firms experiencing financial distress during the period from 1990 through 1996. This window was selected as representative of the time during which governance grew increasingly important in corporate affairs (Baysinger & Hoskisson, 1990; Davis, 1991; Zajac, 1990), a consideration critical to this study given the emphasis on governance structures and their relationship to the bankruptcy decision.

Economic conditions generally were favorable during the selected years, especially during and after 1992, thus suggesting that selection of these years in effect removes the economy as a significant explanation for firm-level financial distress and bankruptcy. Even in 1990, during which growth slowed, and 1991, whose second half was marked by slow growth after an acceleration during the first half of the year (U.S. Dept. of Labor Statistics, 1992), the economy avoided outright contraction and the resultant dislocations often associated with negative growth environments. In either case, however, the matching procedure employed in this study and described below provides a de facto control for the influence of general economic conditions, whether positive or negative, on short-term business prospects and the bankruptcy decision.

In developing the bankrupt sample, I referred to the *Bankruptcy Yearbook and Almanac*, an annual publication of New Generation Research, to identify firms filing petitions in bankruptcy pursuant to Chapter 11 between 1990 and 1996. Consistent with previous research (Daily, 1995; Daily & Dalton, 1994a, 1994b; Weiss, 1990), the sample was limited to those companies with assets equal to or greater than $100 million. Previous work has established that reorganization dynamics may vary with firm size, and the threshold used here is generally considered the level at which "large" company bankruptcy dynamics are most likely to be observed and to be maintained as firm size increases (LoPucki & Whitford, 1993b; Weiss, 1990).

An additional limitation involved the distinction between publicly traded firms and public reporting firms. Many companies included in the *Bankruptcy Yearbook* lists (and possibly included in previous studies) were public only with respect to debt obligations and corresponding SEC requirements governing public disclosure in such circumstances. Such companies, however, are not truly "public" within the meaning of this study. The present research, given its focus on governance and equity control, must include only those firms whose equity was publicly traded, and I excluded from the sample any such public reporting companies.

Nonfiling firms presented a unique identification challenge. Previous studies (e.g., Daily & Dalton, 1994a, 1994b) have begun by identifying filing firms and then constructing a matched sample on the basis of SIC code, sales, and number of employees. While perhaps valid for investigation of the specific issues addressed by these studies, the methodology employed therein does not ensure identification of a sample of equally distressed survivors. Therefore, the question central to this research, "Why do some companies file bankruptcy, while others that are similarly situated do not?," requires a more focused selection protocol.

Accordingly, after identifying the prospective bankrupt sample, I used each filing firm's primary SIC code, debt-to-asset ratio, and total assets in the filing year to begin the matching process. These measures permit comparison between bankrupt and nonbankrupt companies on the basis of similar industry, and therefore economic, conditions, as was true of previous research. However, instead of relying upon size alone as a firm-level matching factor, this study uses the debt-to-asset ratio as a measure of financial distress, thereby limiting the comparison to those firms similarly situated to the bankrupt firms with respect to leverage. Indeed, the debt-to-asset ratio is analogous to the traditional balance sheet test of insolvency, the ability to repay debt from liquidated assets.

Having compiled this information for the bankrupt companies, I looked for nonbankrupt companies operating in the same primary four-digit SIC. Thereafter, I refined the search to those with similar asset totals and leverage, as measured by the debt-to-asset ratio, in the same year as the bankrupt company's filing. Where no matches were available on these criteria, I broadened the search to three-digit SICs, and, where necessary, two-digit classifications. If no matches emerged at this level, the bankrupt company was excluded from the sample. Where matches were identified, I cross-checked against the *Bankruptcy Almanac*'s lists of bankruptcies in both preceding and subsequent years to ensure that the match was not itself a reorganized firm now operating free of bankruptcy or an eventual bankrupt. This procedure resulted in a total sample of 220 firms, 110 each of bankrupts and survivors.

For both bankrupt and nonbankrupt firms, data were collected for the year preceding the decision year. This approach permits isolation of factors contributing to the decision made in the subsequent year, thus permitting causal inferences. The analytical comparison thus is between companies with similar "ending" points but potentially dissimilar, and instructive, "starting" points one year before. The variables of interest are discussed below.

Variables

Dependent Variable

The criterion variable included in the study is the incidence of a bankruptcy filing. This information will be entered as a categorical variable, coded 1 for filing and 0 for nonfiling.

Independent Variables

Independent variables included in the study are described below. All will be gathered from S&P's CompuStat database, individual firm proxy statements and 10-Ks, and the Compact Disclosure database.

Diversification. Hypothesis R1 posits a relationship between the nature of the firm's diversification and the incidence of bankruptcy filing. For each firm reporting business segment information, measures of related and unrelated diversification were calculated in accordance with Palepu's (1985) entropy measure. Palepu defines the total diversification of a firm operating in N industry segments as

$$DT = \Sigma_{i=1...N} P_i \ln(1/P_i)$$

where P_i is the share of the ith segment in the total sales of the firm. Thus, the measure represents the sum of the weighted average share of the different segments, with the weight of each corresponding to $\ln(1/P_i)$, or the logarithm of the inverse of the share.

Palepu also shows that total diversification can be decomposed into related (DR) and unrelated (DU) diversification measures, such that DT = DR + DU. In turn, for a firm operating in several segments, i, within a particular industry group, j, such that the individual segments, as components of the industry group, are thereby related to one another, the firm's related diversification score arising from operations in such segments can be calculated as

$$DR_j = \Sigma_{i...j} P^j_i \ln(1/P^j_i)$$

where P^j_i is the share of segment i of industry group j. For a firm operating in several industry groups, M, representing the sum of the individual component groups, j, the firm's total related diversification is equal to

$$DR = \Sigma_{j=1...M} DR_j P^j$$

where P^j is the share of the jth group's sales in the firm's total sales. Given that DR + DU = DT, and having calculated both DT and DR,

$$DU = DT - DR.$$

Palepu shows that for a firm wholly engaged in one segment of one industry group, such that no diversification exists, DT = 0, but by diversifying into another segment of the same industry group even to the extent of only a 5% share of total sales, the firm's total diversification score (all of it related) rises to .2. By contrast, a firm engaged in operations in five different segments, two in one industry group and three in another, and drawing equal 20% shares of total sales from each, has a total diversification score of 1.61 (DR = .94, and DU = .67). Thus, the calculations are independent of one another in the sense that DT is not an upper limit on either or both DR and DU, such that high levels of one necessarily infer low levels of the other. Both may be high simultaneously depending upon the specific nature of the firm's segment operations, especially the relationships between, and the number of, the segments in which it operates. Finally, the measure's construct validity has been established in various studies (Chatterjee & Blocher, 1992; Hoskisson, Hitt, Johnson, & Moesel, 1993).

Firm solvency. As discussed below, solvency is a control variable, as well as an independent variable in the context of the agency hypotheses, which propose different variables that moderate the expected relationship between solvency and filing. Measured as a continuous variable, firm solvency will be operationalized on a basis analogous to the cash flow test of solvency, or the ability to pay debts as they become due (Warren & Westbrook, 1986). Because firms in the sample were matched on the basis of leverage, it became necessary to identify a means of distinguishing between them with respect to solvency that did not employ the firm's static level of debt. The cash flow test, or the ability to service debt, as compared to the absolute debt level, provided this distinction. Thus, firm solvency is defined herein as the firm's operating cash flow (Ross, Westerfield, & Jordan, 1993) less interest expense, with negative values suggesting an inability to service debt requirements from current operations. Many previous studies (e.g. Daily, 1995, 1996; Daily & Dalton, 1994a, 1994b, 1995) included financial indicators as controls, but the present study, in keeping with the analysis of legal incentives attaching to various solvency states (e.g. Adler, 1996; White, 1996), includes this information as a variable of interest, thus extending and refining previous research. This approach also contemplates a spectrum of solvency values, from positive to highly negative. As used in this study, "high" or "low" solvency thus refers to comparative states, not necessarily to high or low positive values alone.

Current asset ratio. In conjunction with the test of Hypothesis R2, the relative balance of the firm's asset based will be measured as the ratio of the firm's total current assets to total fixed assets (Platt, 1985).

Cash ratio. Hypothesis R3 is based upon each firm's ratio of cash and cash equivalents to total assets, again based upon the rationale that investment imbalances may retard the development of critical resource bases (Platt, 1985).

Board composition. Board composition is operationalized in accordance with the nature of the specific hyothesis under consideration. Hypothesis A3 proposes outside board representation as a moderator of the relationship between solvency and filing. This variable is measured as the proportion of board members who are unaffiliated outsiders, as distinct from those who are insiders (executives of the firm) or outsiders with business or family ties to the firm (Daily, 1995; Daily & Dalton, 1994a, 1994b; Gilson, 1990). In addition, the number of shareholder or creditor representatives on the board, as a percentage of the whole, will be entered in conjunction with tests of Hypotheses A4 and A5, respectively (Gilson, 1990). Hypothesis R4 contemplates the combined effect of creditor and investor representation on the board, and will be tested by computing the additive value of these two groups' percentage representation.

Length of CEO employment contract. In conjunction with the tests of Hypotheses A8a and A8b, this variable will be calculated as the number of years remaining on the CEO's employment contract as of the decision year (Westbrook, 1989).

Equity concentration. Equity concentration, the subject of Hypotheses A1 and A2, will be measured as the percentage of the company's outstanding common stock owned by insiders (firm executives and directors) or outsiders (institutions and unaffiliated blockholders), respectively (Gilson, 1990; McConnell & Servaes, 1990).

Debt maturity and collateral status. The percentage of the firm's total indebtedness that is secured and the percentage of the total that is short-term, or current, will be entered as continuous measures of incentive intensity of debt and creditor influence (Diamond, 1993; Guedes & Opler, 1996; Ofek, 1993). Secured debt is disclosed in financial statement footnotes, while current debt is a balance sheet entry. Respectively, these variables will be entered in the equations testing Hypotheses A6 and A7.

Control Variables

Explicit control variables included in the study are firm size, leverage, and solvency. Firm size generally is viewed as a potential confounding variable unless controlled (Bluedorn, 1993), and in the case of bankruptcy proceedings, firm size has been shown to influence the nature of the reorganization process (Weiss, 1990). This research employs the natural log of total assets as a proxy for firm size. At least at high levels, leverage can be expected to increase the likelihood of bankruptcy, as more leverage increases debt servicing costs and reduces the firm's ability to withstand shocks or revenue shortfalls (Flagg, et al., 1991). Finally, solvency, measured here as a function of cash flow and thus representative of current ability to service debt obligations, also may be viewed as a significant influence on the bankruptcy decision (Warren & Westbrook, 1986).

Although controlled with respect to intra-pair comparisons, in other words those between a bankrupt firm and its match, these variables may nonetheless influence the relationships examined in the study with respect to inter-pair comparisons. An additional and potentially more important rationale for including these factors notwithstanding the control exerted by the matching procedure is the fact that all of these variables arguably share a firm-level resource-based component, in that they can be interpreted as relating to resource availability. Firm size recalls arguments regarding the impact of slack resources (Singh, 1986), and leverage and solvency can be seen as proxies for investment potential or limitations on the use of cash resources. Employing these variables as controls implicitly provides additional resource-based tests of the more standard explanations of, and assumptions regarding, bankruptcy even though no specific hypotheses for such relationships are proposed herein.

Beyond firm-level influences on the bankruptcy decision, the matching procedure employed here implicitly controls for the impact of industry and economic, or extra-organizational, conditions. Growth patterns and prospects applicable to the industry or general economy are thus removed as explanatory variables. They were not separately entered as controls, as were the firm-level determinants discussed above, because their relationship to either agency or resource-based explanations was viewed as indirect at best.

Analytical Procedures

Logistic Regression Procedure

The methodology employed in the present study is logistic regression (Aldrich & Nelson, 1984; DeMaris, 1992; Menard, 1995). This technique provides an estimate of the probability that an event, represented by a dichotomous variable, will occur or not given the set of independent variables. The logit dependent variable is the natural log of the independent variable's likelihood of occurrence. In the present context, the filing event, coded either as 0 (non-filers) or 1 (filers), can be predicted from the set of independent variables described above.

An additional note on the rationale behind the choice of methodology is in order. Dichotomous dependent variables are problematic in ordinary least squares (OLS) regression analysis due to the latter's assumptions regarding homoscedasticity and normally distributed error terms, among others (Menard, 1995). Specifically, OLS assumes a continuous dependent variable that may vary from positive infinity to negative infinity as the values of the independent variables change. Use of a dichotomous dependent variable, however, in which the value of the dependent variable is fixed at one of only two variables, violates this assumption. The result is nonconstant error variance (heteroscedasticity) (Aldrich & Nelson, 1984; Mendard, 1995) and incorrect estimates of sampling variances (Aldrich & Nelson, 1984).

Logit models avoid these problems and provide more efficient estimates of the relationships under consideration. Mathematically, the dependent variable is unbounded by logarithmic transformation, thus:

$$\text{Logit transformation} = \log (P/1\text{-}P)$$

where P is the probability of the occurrence of the event. The value of the transformed dependent variable thereafter is free to vary from negative to positive infinity and can be assumed to be a linear function of the independent variables (Aldrich & Nelson, 1984).

Pursuant to this methodology, the logistic function evaluated with respect to each hypothesis can be represented by the following:

$$\text{Log}\ (P/1\text{-}P) = \alpha + \beta_1 X_1 + \ldots + \beta_n X_n$$

where α is the intercept, the respective βs are parameter estimates representing the slope of the regression line with respect to the subject variable, and the respective Xs represent the independent variables.

Just as OLS incorporates various measures of explanatory sufficiency, logistic regression relies upon the –2 log likelihood statistic (-2LL) to measure the fit of the model. The log likelihood itself is the equivalent of the sum of squared errors in OLS, and multiplication of the log likelihood by –2 results in a value that approximates a chi-square distribution (Menard, 1995). As is true of the chi-square statistic, smaller values of –2LL indicate better fit. In addition, the model log likelihood is equivalent to the residual sum of squares in OLS (DeMaris, 1992), and the initial log likelihood function, which represents the model fit evaluating a formula incorporating only the intercept term (Menard, 1995), is therefore equivalent to the total sum of squares (DeMaris, 1992). Therefore, a statistic that approximates the R^2 of OLS can be derived as follows:

$$\text{Hosmer-Lemeshow } R^2 = (-2LL(L_0) - -2LL(L_1)) / -2LL(L_0)$$

where L_0 is the initial log likelihood function and L_1 is the model under consideration (DeMaris, 1992; Hosmer & Lemeshow, 1989). For this value, higher numbers indicate better fit.

Because the actual mechanics of the logit models employed in this study may differ slightly between specific hypotheses, and between theoretical perspectives, each hypothesis will be described with respect to its applicable mode of analysis. Discussion begins with the resource-based hypotheses, followed by the agency hypotheses.

Resource-Based Hypotheses

Hypotheses R1 through R4 were conducted sequentially in a hierarchical procedure. This technique permits estimation of the incremental explanatory power of each hypothesized relationship by comparing the fit of the hypothesized model to that of the control model. Thus,

$$\text{Control: } \text{Log}(P/1\text{-}P) = \alpha + \beta_1(\text{SIZE}) + \beta_2(\text{LEVERAGE}) + \beta_3(\text{SOLVENCY})$$

$$\text{Model: } \text{Log}(P/1\text{-}P) = \alpha + \beta_1(\text{SIZE}) + \beta_2(\text{LEVERAGE}) + \beta_3(\text{SOLVENCY}) + \beta_4(\text{HYPOTHESIZED VARIABLE})$$

If the incremental fit of the hypothesized model is significantly different from that of the control model, we can be assured that the hypothesized relationship is statistically significant and produces an incrementally superior explanation of the bankruptcy event.

Hypothesis R1 is concerned with the relationship between the firm's level of diversification, and specifically whether such diversification is related or unrelated, and the incidence of bankruptcy. One potential difficulty encountered in investigating this relationship was the large number of cases lost as a result of missing data on the diversification variable. Of the 220 firms in the sample, only 152 specifically reported segment data in the year under consideration. Unfortunately, these 152 firms were not precise matches for one another, necessitating additional exclusions in order to maintain a balanced sample between bankrupts and survivors. After eliminating those firms, either bankrupt or survivor, whose match did not report segment data, a total of 110 companies remained (55 each of bankrupts and nonbankrupts).

Given a fifty percent data loss, the issue to be addressed is whether any pattern exists with respect to segment reporting that would invalidate further comparisons. A mean difference test, reported in Table 1, revealed no statistically significant differences between the reporting and non-reporting firms other than with respect to cash percentage, which provided some confidence in proceeding to test the hypothesized relationships based upon the reduced sample. Mean substitution, of course, was available as an alternative methodology at this point given the apparently random nature of the missing data (Cohen & Cohen, 1983). As reported below, this option was investigated separately as a pseudo-test of the full model, but was not relied upon at this stage of the analysis purely in order to maintain a conservative statistical paradigm.

Hypotheses R2 through R4 were tested using the same reduced sample applicable to Hypothesis R1 in order to provide consistency with respect to comparisons between the resource-based analyses. Additional data were missing with respect to investor and creditor board representation and the current asset ratio, but the losses were minimal (two firms each with respect to investor and creditor board representation, and eight with respect to the current asset ratio). Accordingly, with respect to these missing values, I

TABLE 1

Group Means and Mean Differences for Reporting and Non-Reporting Firms

Variable	Reporting Firms	Nonreporting Firms	Mean Difference
Assets (logn)	5.98	6.05	.07
	(1.22)	(1.31)	
Debt/assets	.85	.90	.05
	(.34)	(.26)	
Solvency	35.75	-3.15	38.90
	(210.72)	(117.70)	
Cash/assets	.06	.09	.03**
	(.06)	(.10)	
Current/fixed assets	15.61	12.92	2.69
	(105.38)	(26.54)	
Inv. + cred. board rep.	.17	.18	.01
	(.15)	(.15)	
Investor board rep.	.13	.13	.01
	(.19)	(.19)	
Creditor board rep.	.04	.04	.01
	(.12)	(.12)	
Outside board rep.	.56	.55	.01
	(.20)	(.20)	
Inside equity	22.26	19.49	2.77
	(22.76)	(21.35)	
Outside equity	45.21	42.20	3.01
	(25.70)	(27.46)	
Secured debt	.23	.27	.04
	(.24)	(.27)	
Current debt	.54	.57	.03
	(.27)	(.32)	
Employment contract	1.30	1.29	.01
	(1.82)	(1.68)	

N = 152 (reporting firms) or 68 (nonreporting firms). * $p < .05$, ** $p < .01$. Numbers in parentheses represent standard deviations.

substituted the group mean in order to maintain sample size at 110 on the assumption that such a minimal substitution would have no statistically significant impact on the subsequent analyses.

Hypotheses R2 and R3 proceeded by entering each firm's ratio of cash to total assets and current assets to fixed assets in respective models. Hypothesis R4, which contemplates a relationship between the extent of external constituent board representation, specifically in the form of either or both investor and creditor board presence, and the incidence of filing, was tested using the additive measure of these two variables.

The hierarchical testing procedure was initiated by entering control variables only and estimating individual coefficients and the model's –2 log likelihood statistic. This measure approximates a chi-square distribution (Menard, 1995) and therefore provides an assessment of model fit. Thereafter, in testing each hypothesis under consideration, the applicable variable of interest was added to the control model, and the resultant –2 log likelihood statistic compared to that of the control model. A significant difference between the obtained value and the original control value indicates that the hypothesized relationship significantly increments explanatory power and can be considered a non-chance predictor of the bankruptcy decision.

Agency Hypotheses

A slightly different analytical technique was employed in connection with the agency hypotheses. Although again proceeding in a hierarchical fashion, all of these hypotheses posit moderated relationships between the variable of interest, solvency, and the incidence of filing. Tests of the agency hypotheses therefore proceeded by creating product terms derived from the multiplication of firm solvency with each of the relevant variables of interest. In the case of Hypotheses A8a and A8b, the applicable moderated relationship was between inside or outside equity, respectively, and the length of the applicable employment contract, which was the basis of each multiplicative term.

Accordingly, the form of the equations estimated in the agency models were as follows:

> Control: Control: Log (P/1-P) = α + β_1(SIZE) + β_2(LEVERAGE) + β_3(SOLVENCY)
>
> Control + Singular Terms: Log (P/1-P) = α + β_1(SIZE) + β_2(LEVERAGE) + β_3(SOLVENCY) + β_4(INSIDE EQUITY) + β_5(OUTSIDE EQUITY) + β_6(OUTSIDE BOARD REP.) + β_7(INVESTOR BOARD REP.) + β_8(CREDITOR BOARD REP.) + β_9(SECURED DEBT) + β_{10}(CURRENT DEBT) + β_{11}(EMPLOYMENT CONTRACT)
>
> Moderated Models: Log (P/1-P) = α + β_1(SIZE) + β_2(LEVERAGE) + β_3(SOLVENCY) + β_4(INSIDE EQUITY) + β_5(OUTSIDE EQUITY) + β_6(OUTSIDE BOARD REP.) + β_7(INVESTOR BOARD REP.) + β_8(CREDITOR BOARD REP.) + β_9(SECURED DEBT) + β_{10}(CURRENT DEBT) + β_{11}(EMPLOYMENT CONTRACT) + β_{12}(MODERATED RELATIONSHIPS: VARIABLE * SOLVENCY; FOR EMP. CONTRACT, INSIDE EQUITY * CONTRACT and OUTSIDE EQUITY * CONTRACT)

Model fit statistics were compared first between the control model and the singular term model, and then between the singular term model and each successive moderated relationship model. Again, significant differences in model fit indicated a significant increment in explanatory power, and therefore the presence of a significant interaction.

Missing data were encountered with respect to investor and creditor board representation (two cases each). In addition, five cases were missing data with respect to secured debt and three with respect to employment contract length. For each such variable, I substituted the appropriate mean values, which appeared justified in light of the very minimal percentage of missing data. These data substitutions resulted in utilization of the full sample of 220 firms, resulting in a de facto difference between the sample employed in testing the resource-based hypotheses and that employed in testing the agency hypotheses. Separate tests of the resulting sample means, reported in Table 2, revealed no differences between the two.

Thus, Hypotheses A1, A2, A3, and A7 were tested by creating the multiplicative term between solvency and inside equity percentage, outside equity percentage, outside board representation, and current debt percentage, respectively. A4 through A6 required mean substitutions for the investor board representation, creditor board representation, and secured debt percentage variables, respectively, after which multiplicative terms were created by multiplying each of these variables with firm solvency. A8a and A8b required mean substitution with respect to the length of the applicable employment contract and the formation of a multiplicative term between this variable and the extent of inside equity and outside equity, respectively.

Analysis of the models proceeded hierarchically, beginning with a test of the control model. Thereafter, an additional pseudo-control model was constructed by entering the controls and all singular terms captured by the agency hypotheses. Specific hypotheses were then tested sequentially by entering the respective multiplicative term in addition to the pseudo-control variables and testing for incremental statistical differences in the –2 log likelihood statistic. All of these models followed the form of the equations set forth above.

TABLE 2

Test of Mean Differences Between Constrained and Full Samples

Variable	Full Sample M	Full Sample SD	Constrained Sample M	Constrained Sample SD	t-statistic
Assets (logn)	6.00	1.25	5.92	1.18	.58
Debt/assets	.86	.32	.85	.38	.40
Solvency	23.73	187.56	40.01	241.46	.67
Related diversif.	.08	.19	.07	.23	.24
Unrelated diversif.	.13	.24	.14	.32	.29
Cash/assets	.06	.08	.05	.06	1.15
Current/fixed assets	14.80	87.51	5.47	13.80	1.11
Investor board pct.	.13	.19	.15	.19	.75
Creditor board pct.	.04	.12	.04	.12	.13
Outside board pct.	.56	.20	.57	.20	.74
Inside equity pct.	21.40	22.32	19.51	21.69	.73
Outside equity pct.	44.28	26.23	47.53	25.29	1.07
Secured debt	.24	.25	.21	.22	1.29
Current debt	.55	.29	.56	.25	.26
Emp. contract	1.29	1.76	1.44	1.95	.70

N = 220 (full sample) or 110 (constrained sample).
† $p < .1$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Finally, I conducted separate hypothesis tests using a combined resource-based/agency model in which all variables relevant to the respective theoretical frameworks were entered simultaneously. This test provided an opportunity to assess the impact of individual variables in the study in the presence of all others, rather than segregating their effects within theoretical groupings. In order to conduct this test on a common sample, I substituted within-group mean values for the companies that did not report business segment data and that were excluded from tests of the diversification hypotheses as a consequence. As indicated above, only 152 firms in the sample reported data with respect to this variable, therefore necessitating substitution in 68 cases. Although a large percentage of the whole, the tests reported in Tables 1 and 2 suggested that no differences existed between either the set of firms reporting segment data and those not reporting such data or between the full, mean-substituted sample and the constrained sample, as discussed above. Consequently, substitution of these values, at least for the limited purpose of conducting the combined analysis as a pseudo-test of the full model, appeared to be justifiable.

Testing the combined model proceeded along the lines discussed above. First, the control model was estimated, followed by a pseudo-control model including all of the resource-based variables and the singular terms relating to the agency hypotheses. This model was used to estimate the explanatory contributions of the resource-based variables, again in the presence of the full model rather than in isolation. Subsequent tests of the agency hypotheses were conducted hierarchically, comparing the results to the pseudo-control model. In all cases, an additional comparison was made to the results obtained in the separate resource-based and agency models.

Chapter 4 presents the results of the foregoing tests. The chapter is organized by theoretical framework, beginning with the resource-based hypotheses. The test of the full model and the comparison to the individual theoretical models is incorporated into the discussion of each theoretical framework's results. A more thorough discussion of the implications of the findings will be presented in Chapter 5.

CHAPTER 4

Results

This chapter presents the results of the study. Consideration is given first to general matters such as the tests of mean differences between the respective firm groupings (i.e., bankrupt and surviving firms) and the pattern of results emerging from inspection of the correlation matrix. Thereafter, the analyses of each of the theoretical frameworks and their related hypotheses will be presented.

General: Correlations and Group Mean Differences

Table 3 presents bivariate correlations and descriptive statistics for the variables used in the study, based upon the full sample of 220 firms. Mean values were substituted for missing values in the case of each variable for which at least one firm reported no data. As described in Chapter 3, this entailed 68 substitutions (by group membership, i.e., whether bankrupt or nonbankrupt) with respect to the diversification variables, two each for investor and creditor board representation, eight for the current asset ratio, five for the secured debt percentage, and three with respect to employment contract length.

Table 3

Correlations and Descriptive Statistics

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10	11
1. Filing status‡	.50	.50	1.00										
2. Assets (logn)	6.00	1.25	-.04	1.00									
3. Debt/assets#	.86	.32	.03	-.05	1.00								
4. Solvency	23.73	187.60	-.19••	.33•••	-.11	1.00							
5. Related divers.	.08	.19	-.19••	.23•••	-.03	.07	1.00						
6. Unrelated divers.	.13	.24	-.01	.04	.12†	.03	.17••	1.00					
7. Cash/assets	.07	.08	-.02	.15•	.08	-.10	-.01	.04	1.00				
8. Current/fixed	14.80	87.51	.09	-.03	-.06	-.03	-.03	-.04	.03	1.00			
9. Inv+cred board rep.	.18	.26	-.05	-.05	.20••	-.06	.03	.10	-.04	-.06	1.00		
10. Inv. board rep.	.13	.19	-.02	-.03	.18••	-.06	.05	.04	-.04	-.07	.91•••	1.00	
11. Creditor board rep.	.04	.12	-.08	-.06	.15•	-.03	-.02	.15•	-.02	-.03	.75•••	.41•••	1.00
12. Outside board rep.	.56	.20	.01	.18••	.04	.15•	.05	-.08	-.08	.08	.13†	.19••	-.02
13. Inside equity	21.40	22.30	-.10	-.22•••	-.03	-.11	.01	-.09	.10	-.02	-.28•••	-.31•••	-.14•
14. Outside equity	44.30	26.20	-.07	.26•••	.01	.17••	.04	-.02	-.03	-.11†	.35•••	.45•••	.07
15. Secured debt	.24	.25	.14•	-.20••	.16•	-.04	.01	.05	-.20••	-.06	-.01	-.01	-.01
16. Current debt	.55	.29	.19••	-.03	.09	-.13•	-.05	.01	.31•••	.17••	.02	.02	.01
17. Emp. contract	1.29	1.76	-.01	.10	-.07	-.05	-.10	-.07	.01	-.06	-.08	-.08	-.05

Variable	12	13	14	15	16	17
12. Outside board rep.	1.00					
13. Inside equity	-.44•••	1.00				
14. Outside equity	.32•••	-.64•••	1.00			
15. Secured debt	-.08	.07	-.18••	1.00		
16. Current debt	-.01	-.02	-.01	-.13•	1.00	
17. Emp. contract	-.02	-.07	.10	-.06	-.07	1.00

N = 220.

‡ Coded 0 (no filing) or 1 (filing).

† p < .1, • p < .05, •• p < .01, ••• p < .001.

Note: Debt/assets is a measure of insolvency, such that higher debt/asset ratios are indicative of greater insolvency.

Mean substitution also was utilized in the mean difference test between bankrupt and surviving firms reported in Table 4. Importantly for the design and conduct of this research, no significant differences exist with respect to the matching variables, firm size and debt-to-asset ratio. Significant differences between the two groups do exist with respect to solvency ($p < .01$), related diversification ($p < .01$), secured debt percentage ($p < .05$), and current debt percentage ($p < .01$). On average, filing firms are not only more insolvent than their surviving counterparts, but also exhibit negative operating cash flow after interest expense. Nonbankrupt firms, by contrast, enjoyed fairly positive cash flow. Otherwise, filing firms show lower levels of related diversification, but higher levels of both secured debt and current debt.

With respect to the correlations appearing in Table 3, and beginning with the dependent variable, filing, coded as one for bankrupt firms and zero for nonbankrupt firms, significant correlations exist as to solvency, related diversification, and secured debt and current debt percentages. Specifically, filing (as the "high" value of the dependent variable) is associated with low levels of solvency ($r = -.19$, $p < .01$) and related diversification ($r = -.19$, $p < .01$), but high levels of both secured debt ($r = .14$, $p < .05$) and current debt ($r = .19$, $p < .01$), all of which results are unsurprising in light of the mean difference analysis outlined above. Unrelated diversification, in contrast to related, bears almost no relationship to the filing decision ($r = -.01$, n.s.). Indeed, no other variable's correlation with filing exceeds ± .1, with most at levels less than ± .05.

TABLE 4

Group Means and Mean Differences

Variable	Filing Firms	Nonfiling Firms	Mean Difference
Assets (logn)	5.95	6.05	.10
	(1.10)	(1.39)	
Debt/assets	.87	.86	.01
	(.35)	(.28)	
Solvency	-11.92	59.38	71.30**
	(103.70)	(239.50)	
Related diversification	.04	.11	.07**
	(.15)	(.22)	
Unrelated diversification	.13	.13	.01
	(.21)	(.27)	
Cash/assets	.06	.07	.01
	(.06)	(.09)	
Current/fixed assets	22.99	6.60	16.39
	(122.42)	(16.32)	
Inv. + cred. board rep.	.16	.19	.03
	(.08)	(.14)	
Investor board rep.	.13	.14	.01
	(.18)	(.19)	
Creditor board rep.	.03	.05	.02
	(.10)	(.13)	
Outside board rep.	.56	.55	.01
	(.21)	(.20)	
Inside equity	19.14	23.67	4.53
	(21.51)	(22.98)	
Outside equity	42.43	46.12	3.69
	(25.86)	(26.59)	
Secured debt	.28	.21	.07*
	(.25)	(.24)	
Current debt	.60	.49	.11**
	(.30)	(.27)	
Employment contract	1.28	1.31	.03
	(1.75)	(1.77)	

N = 220. * $p < .05$, ** $p < .01$. Numbers in parentheses represent standard deviations.

Continuing with the analysis of Table 3, firm size is strongly ($p < .001$) positively associated with solvency ($r = .33$), related diversification ($r = .23$), and outside equity percentage ($r = .18$). Outside board representation ($r = .18$, $p < .01$) and cash percentage ($r = .15$, $p < .05$) also are positively associated with firm size. Negative correlations are observed between size and inside equity percentage ($r = -.22$, $p < .001$) and secured debt percentage ($r = -.20$, $p < .01$).

Leverage, measured as the debt-to-asset ratio, is weakly ($p < .10$) and positively ($r = .12$) correlated with unrelated diversification. Interestingly, only a nonsignificant, but negative, relationship exists between leverage and related diversification ($r = -.03$). Although related and unrelated diversification are positively related ($r = .17$, $p < .01$), these findings suggest that unrelated diversification is accomplished without high, or at least incremental additional, levels of debt. Leverage also is positively associated with both investor ($r = .18$, $p < .01$) and creditor ($r = .15$, $p < .05$) board representation, and with the use of secured debt ($r = .16$, $p < .05$). These associations are suggestive of a concern for, and monitoring of, the firm as debt levels, and hence the objective likelihood of a default, increase. Interestingly, though, the association between leverage and filing in this sample is not statistically significant, although negative ($r = -.04$), perhaps testifying to the effect of external oversight.

Carrying the theme of external monitoring one step further, note that unrelated diversification is positively associated with creditor board representation ($r = .15$, $p < .05$), but not with investor board representation ($r = .04$, n.s.). Related diversification, however, bears almost no relationship to either creditor ($r = -.02$, n.s.) or investor ($r = .05$, n.s.) board representation. These findings may be attributable to the use of leverage described above with respect to both related and unrelated diversifiers, but also may suggest different interpretations of acceptable practice by, and different levels of concern among, different kinds of external monitors.

The two asset deployment ratios, cash and equivalents as a percentage of total assets and current assets as a percentage of fixed assets, are significantly and positively related to current debt percentage ($r = .31$, $p < .001$; and, $r = .17$, $p < .01$, respectively). A strongly negative relationship exists between the secured debt percentage and the cash percentage ($r = -.20$, $p < .01$). Both of these ratios broadly measure investment patterns, specifically whether the firm is investing in short-term or long-term assets or otherwise retaining or deploying cash assets, but they can also be understood as de facto measures of liquidity. Thus, the incidence of high current debt levels and high levels of liquidity may suggest that management is acting to create a buffer against potential default in the short-run or possibly for use as leverage in debt extension or renegotiation.

The equity holding and board representation variables generally relate to one another as might be expected intuitively. For example, investor board representation is strongly associated with outside equity concentration ($r = .45$, $p < .001$), and similarly, the latter is positively related to general outside board representation ($r = .32$, $p < .001$). Interestingly, creditor and investor board representation are highly correlated with one another ($r = .41$, $p < .001$), suggesting that both groups seek an active monitoring role, and use their relative influence to achieve the same, in distressed organizations.

On the other hand, note that Table 3 also reports some relationships indicative of competing interests and battles for control. Specifically, inside equity holdings negatively correlate with both investor ($r = -.31$, $p < .001$) and creditor ($r = -.14$, $p < .05$)

board representation, and with outside equity percentage ($r = -.64$, $p < .001$) and outside board representation ($r = -.44$, $p < .001$). Because the equity holding percentage necessarily is bounded, the relationship between high levels of inside concentration and low levels of outside concentration, or vice versa, is unexceptional. The other correlations, however, are consistent with an agency theoretical interpretation of managerial and stakeholder conflict, and indeed comport with the use of executive influence to minimize external monitoring and accountability. Moreover, this pattern of results, when considered in light of the aforementioned correlation between both investor and creditor board representation, is not inconsistent with the cooperative use of power and influence by external stakeholders to achieve control over the firm, and by extension, their investments or stakes therein.

Notwithstanding these observations, in general there are no distinct correlation patterns that serve to distinguish the relationships between the operational decision variables and either external or internal control. For example, the key variable in the study, filing, is not significantly related to either inside equity percentage ($r = -.10$, n.s.) or outside equity percentage ($r = -.07$, n.s.), or for that matter to either investor ($r = -.017$, n.s.) or creditor ($r = -.08$, n.s.) board representation. Likewise, related diversification is not significantly related to inside equity percentage ($r = .01$, n.s.), outside equity percentage ($r = .04$, n.s.), investor board representation ($r = .05$, n.s.), or creditor board representation ($r = -.02$, n.s.). Unrelated diversification does not bear a statistically significant relationship to inside ($r = -.09$, n.s.) or outside ($r = -.02$, n.s.) equity holdings or to investor board representation ($r = .04$, n.s.), but is significantly and positively related to creditor board representation ($r = .15$, $p < .05$). The general pattern is similar in the case of both cash and current asset percentages as well. Even in the case of firm solvency, which in the present context might be viewed as the ultimate test of successful control, a significant relationship appears only with respect to outside equity percentage ($r = .17, p < .01$), and whether this is cause or effect is unclear. Thus, with the exception of the relationship between creditor board representation and unrelated diversification, the identity of the dominant interest seems to have no impact on the decision profile of the firm, which in turn suggests that any extant conflict between internal and external interests is limited in effect to the simple question of control, not results per se.

Although both investor and creditor board representation are correlated with one another, as discussed above, other results are consistent with additional levels of conflict between the interests of investors and creditors, and even between different groups of creditors. The apparent difference between creditors and investors with respect to the extent of unrelated diversification is one potential hint of this. In addition, outside equity percentage is negatively associated with the use of secured debt ($r = -.18, p < .01$), which is among the more incentive intense forms of credit. Even if this relationship exists simply as a function of solvency, as Table 3 might be read to imply, different kinds of external interests, with potentially disparate legal rights, are conjoined in the affairs of the sample firms. In this respect, note also that even secured debt and current debt are negatively related to one another ($r = -.134, p < .05$). Taken as a whole, these results suggest that both between equity and debt interests, as well as between different strata of debt interests themselves, conflict may arise given the nature of the respective legal entitlements juxtaposed with the identity of a dominant grouping relative to the less dominant groupings.

One interesting, albeit disappointing, result, given the focus of the present research, is the apparent uselessness of the CEO's employment contract status as an explanatory variable. Not only is there virtually no relationship between contract length and the incidence of bankruptcy (r = -.01, n.s.), but no other bivariate relationship emerges with a coefficient greater than approximately ± .1. Results of this magnitude were observed with respect to the level of related diversification (r = -.10, n.s.) and outside equity percentage (r = .10, n.s.). This implies a very slight tendency on the part of well-insulated executives to avoid high levels of related diversification and an apparent willingness on the part of external investors to reward executives with greater security. A result of this nature may make sense if viewed from the perspective of firm performance, which is confirmed in Table 3 by the observed relationships between outside equity percentage and solvency. Still, it must be emphasized that in light of the nonsignificant contract coefficients, interpretation and speculation regarding the substantive significance of the relationships is tenuous at best.

The foregoing analysis is, of course, based upon bivariate correlations, which do not control for the influence of third variables. Therefore, conclusive evidence of individual effects such as those described must await formal testing in fuller models, such as those utilizing multiple regression or structural modeling, that incorporate simultaneous effects or controls and partial effects. However, the overall pattern that emerges from the correlation matrix provides at least a general picture of some of the critical variable interrelationships, as well as grist for future exploration.

Discussion now turns to consideration of the specific hypotheses included in the study. These results are presented in Tables 5 through 7 (a and b), and are organized herein by the theoretical perspective to which they relate, beginning with the resource-based hypotheses. Thereafter, the results of the agency hypotheses will be reported. A full discussion of the results and their implications, including an integration of the insights gleaned from the correlations outlined above together with those from the hypothesis tests, will be presented in Chapter 5.

Resource-Based Hypotheses

Results of the resource-based hypotheses are presented in Tables 5 and 7 (a and b). The latter reflects the joint test of the resource-based and agency variables, based upon the full sample of 220 firms and mean substitution with respect to missing data on the diversification measures. By contrast, Table 5 results reflect a sample size of 110 firms, based upon the lack of diversification data for 68 firms and additional case exclusion necessary to balance the sample between remaining bankrupts and survivors. The two sets of results will be compared in the discussion of each hypothesis.

Testing of the hypotheses, it will be recalled, proceeded hierarchically. First, a control model was estimated, which incorporated only firm size, solvency, and leverage. Models 2 through 5 in Table 5 then were estimated sequentially, each including the respective variables of interest associated with the resource-based hypotheses. Model fit statistics, in particular the –2 log likelihood (hereinafter, "-2LL"), were compared against those resulting from estimation of the control model in order to ascertain the significance of the incremental explanatory power of the sequential models. The same process was utilized with respect to the results summarized in Tables 7a and 7b; however, only

TABLE 5

Resource-Based Hypotheses

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
Step One (Controls):					
Assets (logn)	.36	.56*	.35	.35	.33
Debt/assets	-.46	-.50	-.43	-.44	-.35
Solvency	-.01*	-.01**	-.01*	-.01*	-.01*
Step Two (Ind. Variables)					
Related divers.		-2.77*			
Unrelated divers.		-.07			
Cash/assets			-2.01		
Current/fixed assets				.01	
Inv.+ cred. board rep.					-1.16
Constant	-1.52	-2.45†	-1.40	-1.52	-1.28
Model Fit Statistics					
-2 log likelihood	140.38	134.07	139.97	140.30	138.31
Classification pct.	59.09	65.45	58.18	59.19	61.82
Hosmer-Lemeshow R^2	.08	.12	.08	.08	.09
Model Comparison					
-2LL difference		6.30*	.40	.07	2.07

Dependent variable coded 1 (filing) or 0 (nonfiling).

N = 110. Coefficients are unstandardized. Model comparison is between control model (Model 1) and respective step two models.

† $p < .1$, * $p < .05$, ** $p < .01$.

TABLE 6a

Agency Hypotheses

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Step One (Controls):							
Assets (logn)	.11	.17	.14	.17	.17	.20	.19
Debt/assets	-.19	-.40	-.57	-.39	-.39	-.45	-.51
Solvency	-.01**	-.01**	-.01	-.01	-.02*	-.01†	-.01*
Step Two (Ind. Variables):							
Inside equity		-.03**	-.03**	-.03**	-.03**	-.03**	-.03**
Outside equity		-.01†	-.01†	-.01†	-.02†	-.01†	-.01†
Outside board rep.		-.46	-.78	-.42	-.64	-.42	-.39
Investor board rep.		.47	.36	.49	.45	.96	.40
Cred. board rep.		-2.18	-2.03	-2.18	-2.30†	-2.58†	-2.29
Secured debt		1.38*	1.47*	1.37*	1.41*	1.45*	1.50*
Current debt		1.25*	1.25*	1.24*	1.22*	1.19*	1.23*
Emp. contract		-.01	-.01	-.01	-.01	-.01	-.01
Step Three (Interactions):							
In. eq. * solv.			-.01*				
Out. eq. * solv.				-.01			
Out. board * solv.					.02		
Inv. board * solv.						-.03	
Cred. board * solv.							-.04
Constant	-.38	-.03	.46	-.10	.12	-.18	-.17
Model Fit Statistics							
-2 log likelihood	287.31	266.72	256.77	266.66	264.38	264.86	265.46
Classification pct.	61.82	65.91	67.73	66.36	66.36	65.91	65.00
Hosmer-Lemeshow R^2	.06	.13	.16	.13	.13	.13	.13
Model Comparison							
-2LL difference		20.53***	10.01**	.12	2.40	1.92	1.33

Dependent variable coded 1 (filing) or 0 (nonfiling).
N = 220. Coefficients are unstandardized. Model comparison is between control model (Model 1) and saturated model (Model 2), and thereafter between saturated model (Model 2) and respective interaction models.
† $p < .1$, * $p < .05$, ** $p < .01$.

TABLE 6b

Agency Hypotheses

Variable	Model 8	Model 9	Model 10	Model 11
Step One (Controls):				
Assets (logn)	.22	.17	.15	.16
Debt/assets	-.45	-.66	-.37	-.36
Solvency	-.01	-.01	-.01**	-.01**
Step Two (Ind. Variables):				
Inside equity	-.03**	-.03**	-.02*	-.03**
Outside equity	-.01*	-.01†	-.02*	-.02*
Outside board rep.	-.52	-.54	-.48	-.45
Investor board rep.	.75	.35	.60	.58
Cred. board rep.	-2.15	-2.26	-2.15	-2.26†
Secured debt	1.77**	1.28*	1.39*	1.39*
Current debt	1.05†	1.36*	1.25*	1.27*
Emp. contract	.01	-.01	.11	-.12
Step Three (Interactions):				
Sec. debt * solv.	-.04*			
Curr. debt * solv.		-.03*		
Emp. contract* in. eq.			-.01	
Emp. contract * out. eq.				.01
Constant	-.17	.14	-.04	.13
Model Fit Statistics				
-2 log likelihood	261.20	260.97	265.17	266.04
Classification pct.	65.45	67.27	67.27	67.27
Hosmer-Lemeshow R^2	.14	.14	.13	.13
Model Comparison				
-2LL difference	5.58*	5.82*	1.61	.74

Dependent variable coded 1 (filing) or 0 (nonfiling).
N = 220. Coefficients are unstandardized. Model comparison is between control model (Model 1) and saturated model (Model 2), and thereafter between saturated model (Model 2) and respective interaction models.
† $p < .1$, * $p < .05$, ** $p < .01$.

TABLE 7a

Joint Tests of Resource-Based and Agency Hypotheses

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Step One (Controls):							
Assets (logn)	.11	.33*	.29†	.35*	.32*	.39*	.36*
Debt/assets	-.19	-.41	-.54	-.40	-.39	-.51	-.53
Solvency	-.01**	-.01**	-.01	-.01	-.02†	-.01†	-.01**
Step Two (Ind. Variables):							
Inside equity		-.03**	-.03**	-.02*	-.03**	-.02*	-.02*
Outside equity		-.01†	-.01	-.01	-.01†	-.01†	-.01
Outside board rep.		-.57	-.84	-.47	-.68	-.48	-.49
Investor board rep.		.79	.64	.83	.75	1.56	.70
Cred. board rep.		-2.51†	-2.27	-2.53†	-2.54†	-3.22*	-2.59†
Secured debt		1.44*	1.54*	1.41*	1.47*	1.59*	1.57*
Current debt		1.35*	1.33*	1.35*	1.32*	1.28*	1.35*
Emp. contract		-.03	-.03	-.04	-.04	-.04	-.04
Related diversif.		-2.72**	-2.32*	-2.84**	-2.52*	-3.44**	-2.70**
Unrelated diversif.		.19	.09	.25	.11	.25	.15
Cash/assets		-2.62	-2.26	-2.68	-2.42	-2.75	-2.75
Current/fixed assets		.01	.01	.01	.01	.01	.01
Step Three (Interactions):							
In. eq. * solv.			-.01*				
Out. eq. * solv.				-.01			
Out. board * solv.					.02		
Inv. board * solv.						-.04*	
Cred. board * solv.							-.05
Constant	-.38	-.75	-.26	-.97	-.62	-1.08	-.93
Model Fit Statistics							
-2 log likelihood	287.31	255.85	248.34	255.23	254.87	251.15	254.36
Classification pct.	61.82	70.45	69.55	71.36	70.91	67.73	67.27
Hosmer-Lemeshow R^2	.06	.16	.19	.16	.16	.18	.17
Model Comparison							
-2LL difference		31.46**	7.51**	.61	.98	4.69*	1.49

Dependent variable coded 1 (filing) or 0 (nonfiling).

N = 220. Coefficients are unstandardized. Model comparison is between control model (Model 1) and saturated model (Model 2), and thereafter between saturated model (Model 2) and respective interaction models.

† $p < .1$, * $p < .05$, ** $p < .01$.

TABLE 7b

Joint Tests of Resource-Based and Agency Hypotheses

Variable	Model 8	Model 9	Model 10	Model 11
Step One (Controls):				
Assets (logn)	.41*	.34*	.32*	.32*
Debt/assets	-.46	-.68	-.38	-.39
Solvency	-.01	.01	-.01**	-.01**
Step Two (Ind. Variables):				
Inside equity	-.03**	-.03**	-.02†	-.02**
Outside equity	-.02†	-.01	-.02†	-.02†
Outside board rep.	-.67	-.62	-.58	-.55
Investor board rep.	1.12	.61	.92	.87
Cred. board rep.	-2.45†	-2.61†	-2.50†	-2.57†
Secured debt	1.97**	1.33*	1.43*	1.44*
Current debt	1.12†	1.52*	1.39*	1.39*
Emp. contract	-.02	-.04	.07	-.11
Step Three (Interactions):				
Sec. debt * solv.	-.05**			
Curr. debt * solv.		-.03*		
Emp. contract* in. eq.			-.01	
Emp. contract * out. eq.				.01
Constant	1.00	-.61	-.78	-.64
Model Fit Statistics				
-2 log likelihood	249.38	250.13	254.63	255.50
Classification pct.	70.00	70.00	70.45	70.45
Hosmer-Lemeshow R^2	.18	.18	.17	.16
Model Comparison				
-2LL difference	6.46*	5.72*	1.21	.35

Dependent variable coded 1 (filing) or 0 (nonfiling).

N = 220. Coefficients are unstandardized. Model comparison is between control model (Model 1) and saturated model (Model 2), and thereafter between saturated model (Model 2) and respective interaction models.

† $p < .1$, * $p < .05$, ** $p < .01$.

Models 1 (control) and 2 (full, without interactions) are relevant to interpretation of the resource-based variable coefficients. Again, the incremental explanatory power of the Table 7 models is judged by comparison of Model 2's –2LL statistic with that of Model 1.

In the case of the control model, reported as Model 1 in both Table 5 and Table 7a, only solvency is significantly related to the filing decision ($b = -.01$, $p < .05$). The negative relationship signifies that filing firms are less solvent than nonfiling firms. The other control variables, firm size and leverage, are not significantly related to filing, but the coefficient signs are opposite what might be anticipated: negative for leverage (implying that filing firms actually have less debt than the surviving firms) and positive for firm size (implying that filing firms are larger than the survivors). The latter is surprising given the strongly positive correlation between size and solvency ($r = .33$, $p < .001$) reflected in Table 5, even though the correlation between size and filing is positive but not significant ($r = .03$, n.s.). Although interesting, these results cannot, of course, be considered statistically meaningful at this juncture. Overall, the control model correctly classified 59% (Table 5) to 62% (Table 7a) of the cases; the Hosmer-Lemeshow R^2 (hereinafter, "R^2") is .08 and .06 for the limited sample versus the full sample with mean substitution, respectively.

Before examining the independent variable relationships, note the size and solvency coefficients summarized throughout Tables 5, 7a, and 7b. Consistent with the control models, solvency retains a negative value and is consistently significant throughout the resource-based tests. Its significance varies among the full model and agency tests summarized in Tables 7a and 7b, but the full model test without product terms (Model 2, Table 7a) reveals an equally strong negative association ($b = -.01$, $p < .01$). Nonsigificance or weak ($p < .10$) significance is obtained only when solvency is entered as a singular term in the presence of an interaction term of which it is a component part (see Models 3-6 and 8-9, Tables 7a and 7b). The general pattern revealed is consistent with a solvency-based definition of the bankruptcy event, specifically that higher levels of insolvency are related to and predictive of filing, at least within limits defined by the presence or absence of certain other variables identified and discussed below.

Size also is interesting. As noted above, finding a positive relationship between size and filing, much less a statistically significant relationship, is rather surprising given the positive correlation between firm size and solvency. Perusal of Tables 5, 7a, and 7b indicates that size is virtually always significantly related to filing in the full model, but only achieves significance once (Model 2, Table 5) in the reduced sample tests of the resource-based hypotheses. The coefficients are similar across all models, however, and in all cases, the relationship between size and filing is positive, but the combined filing-size-solvency relationships seem to differ from the nature of the bivariate correlations among these variables. The true nature of the combined effects of filing, size, and solvency thus may be more complex than originally thought.

Turning to specific independent variable tests, Hypotheses R1a and R1b theorized, respectively, that related diversification would be negatively related to filing and that unrelated diversification would be positively related to filing. The results of this test are shown as Model 2 in both Table 5 and Table 7a. The resource-based variable model (Table 5) significantly increments the -2LL statistic (Δ-2LL = 6.304, $p < .05$), and

R^2 increases from to .12. The classification percentage also increases in this model to more than 65%. The test of the full model (Table 7a) is consistent with this result, with the increment in –2LL significant at the .01 level. The R^2 is .16 in this model, and the classification percentage increases to 70.45%. Interpretation of the individual coefficients thus is permissible given the significance of the model as a whole.

With respect to the independent variables of interest, note that in both models the related diversification coefficient is negative and significant ($b = -2.77$, $p < .05$; and, $b = -2.72$, $p < .01$, respectively), thus supporting Hypothesis R1a. However, the unrelated diversification coefficient is not significant ($b = -.07$, n.s.), therefore failing to confirm Hypothesis R1b. Note that the sign of the unrelated diversification coefficient is negative in Model 2 of Table 5, but positive in Model 2 of Table 7a (and indeed throughout the series of tests summarized in Table 7a). The negative sign in Table 5 is contrary to expectations.

Model 3 of Table 5 tests the relationship between the cash ratio and filing. Hypothesis R2 predicted that bankrupt firms would have low cash ratios. The coefficient for the cash ratio indeed is negative, as predicted, but is not significant ($b = -2.01$, n.s.). The model also produced only a nonsignificant increment to the –2LL statistic (Δ-2LL = .40, n.s.) of the control model (Model 1). R^2 is unchanged from the control model, and the classification percentage actually decreases (from the control's 59% to 58.18%). Model 2 of Table 7a is consistent with respect to the individual cash ratio coefficient, even though that model is significant as a whole; the effect of the full model thus is derived from variables other than the cash ratio. Thus, Hypothesis R2 is not supported.

In similar fashion, Hypothesis R3 predicted that the firm's ratio of current assets to fixed assets would be negatively related to filing. Model 4 of Table 5 tested this proposition. As can be seen, the effect of the current asset ratio on filing is less than that of the cash ratio. Indeed, the results reflect virtually no association between the current asset ratio ($b = .01$, n.s.) and filing, and not surprisingly there is virtually no observable increment in $-2LL$ (Δ-$2LL = .07$, n.s.) and literally no change in the classification percentage (59.09%) when compared to the control model. Model 2 of Table 7a again is consistent with respect to the individual variable coefficient. Finally, the sign of the current ratio coefficient is positive, albeit only marginally nonzero, which is contrary to the original prediction. Thus, Hypothesis R3 is not supported.

Finally, Hypothesis R4 argued that the extent of both investor and creditor board representation would correspond with a net inflow of resources to the firm, and therefore would be negatively related to the filing decision. A quick note on the specific testing procedure applicable to this hypothesis is in order. Because the resource-based hypothesis posited an aggregate external stakeholder effect on resource flows to the firm, no distinction was made with respect to the identity of the stakeholder in this particular test. The variable entered in estimating the resource-based model thus represented the additive value of these parties' board presence. However, because the agency hypotheses posited differential effects based upon the identity of the stakeholder, and because of the high collinearity between the additive term and its component parts (see Table 3), only the individual stakeholder variables were entered in the full and agency models. Accordingly, comparison of Model 5, Table 5 and Model 2, Table 7a permits a crude assessment of the source or identity of primary contribution to the joint effect hypothesis.

As can be seen from Table 5, Model 5 does not significantly increment the control model (Δ-2LL = 2.068, n.s.). R^2 increases to .09, and the classification percentage rises to approximately 62% from 59%. The coefficient of the external stakeholder variable indeed is negative, as expected, but again is nonsignificant. Hypothesis R4 is not supported by these results.

Perusal of Tables 7a and 7b provides further elaboration of these relationships. Recall that the joint effect prediction of the resource-based hypothesis was based upon the notion that any external stakeholder would seek to protect its extant interest in the firm with the additional resources necessary to ensure firm survival. By contrast, the agency hypotheses anticipated the effects of potentially different and competing interests among external stakeholders.

Tables 7a and 7b tend to reflect the latter interpretation, while perhaps narrowing the scope of the former. Specifically, note in Model 2 that the investor and creditor board represenation coefficients differ as to sign, with investor representation bearing a positive, if nonsignificant, relationship to filing (b = .79, n.s.), and creditor representation bearing a weakly significant, but negative, relationship to filing (b = -2.51, $p < .10$). This conflict in effects likely explains the nonsignificant findings associated with the joint effects resource-based hypothesis. Indeed, creditor representation is significant at conventional levels (b = -3.22, $p < .05$) in Model 6, Table 7a, which tests the interaction between investor board representation and solvency. The pattern of results in this model suggests a complex, and potentially interacting, set of effects between investor representation, creditor representation, and firm solvency.

Overall, the resource-based hypotheses were not supported and in many instances were disappointing. Size and solvency, the control and implicit tests of conventional wisdom regarding bankruptcy, appear to have more consistent effects on the filing decision than most of the variable relationships proposed herein. However, key findings among these hypotheses related to the diversification data and the relationships between and among investor and creditor board representation and firm solvency. The former are important for the implications between competency construction and survival, as will be detailed below in Chapter 5, while the latter may hint at fruitful avenues of subsequent research.

Agency Hypotheses

Results of the agency hypothesis tests are reported in Tables 6a and 6b. Comparison again is made to Tables 7a and 7b, which reflect the tests of these relationships in the context of the full model, including the resource-based variables. In contrast to the resource-based tests, the agency tests are based upon the full sample of 220 firms, with minor mean value substitutions as outlined above.

Models 1 and 2, Table 6a, are the control and pseudo-control models, respectively. Model 1 incorporates only the control variables: size, leverage, and solvency. Model 2 adds to these variables all of the singular term variables associated with the agency tests. Initially, the results indicate that Model 2 significantly increments Model 1 (Δ-2LL = 20.53, $p < .01$), with corresponding improvements in R^2 and classification percentage. Solvency is strongly negatively related to filing ($b = -.01$, $p <$

.01), as is inside equity percentage (b = -.03, $p < .01$). Secured debt (b = 1.38, $p < .05$) and current debt (b = 1.25, $p < .05$) are positively associated with filing. A weakly significant ($p < .10$) negative relationship exists between outside equity percentage and filing (b = -.01). These results are consistent with those reported in Model 2, Table 7a. Hereinafter, Model 2, Table 6a is the basis against which subsequent individual moderated models are judged.

All of the moderated hypotheses, with the exception of Hypotheses A8a and A8b, assume a negative relationship between solvency and filing. The question each examines is whether a third variable, in light of agency relationships and incentives arising from bankruptcy law, alters the nature of that relationship by its presence or absence. As noted above, where a significant moderated effect was obtained, the form of the relationship was plotted based upon the methodology of Cohen and Cohen (1983) (see also Schmitt & Klimoski, 1991), the results of which were subsequently cross-validated using a median-split technique (Jaccard, Turrisi, & Wan, 1990; Pedhazur, 1982).

Hypothesis A1 argued that inside equity holdings would moderate the solvency-bankruptcy relationship such that a low inside equity percentage would increase the negative relationship between solvency and filing, while a high inside equity percentage would decrease this effect. In effect, filing firms with high levels of inside ownership are predicted to file while more solvent than those with low inside equity. Results of this test are presented as Model 3 in Tables 6a and 7a.

Note first that the model increment to the -2LL statistic is significant ((Δ-2LL = 10.01, $p < .01$). Under this model, both R^2 and the classification percentage reach their respective maxima under any of the resource-based or agency only models (Tables 5, 6a, and 6b). The full model, including the resource-based variables, reported in Table 7a generally comport with these results (Δ-2LL = 7.51, $p < .01$; $R^2 = .19$, maximum level achieved; classification percentage = 69.55%, down from 70.45% in the control model). Individual variable coefficients are similar to those reported above for the control model, with the exception of creditor board representation, which is nonsignificant in the present model.

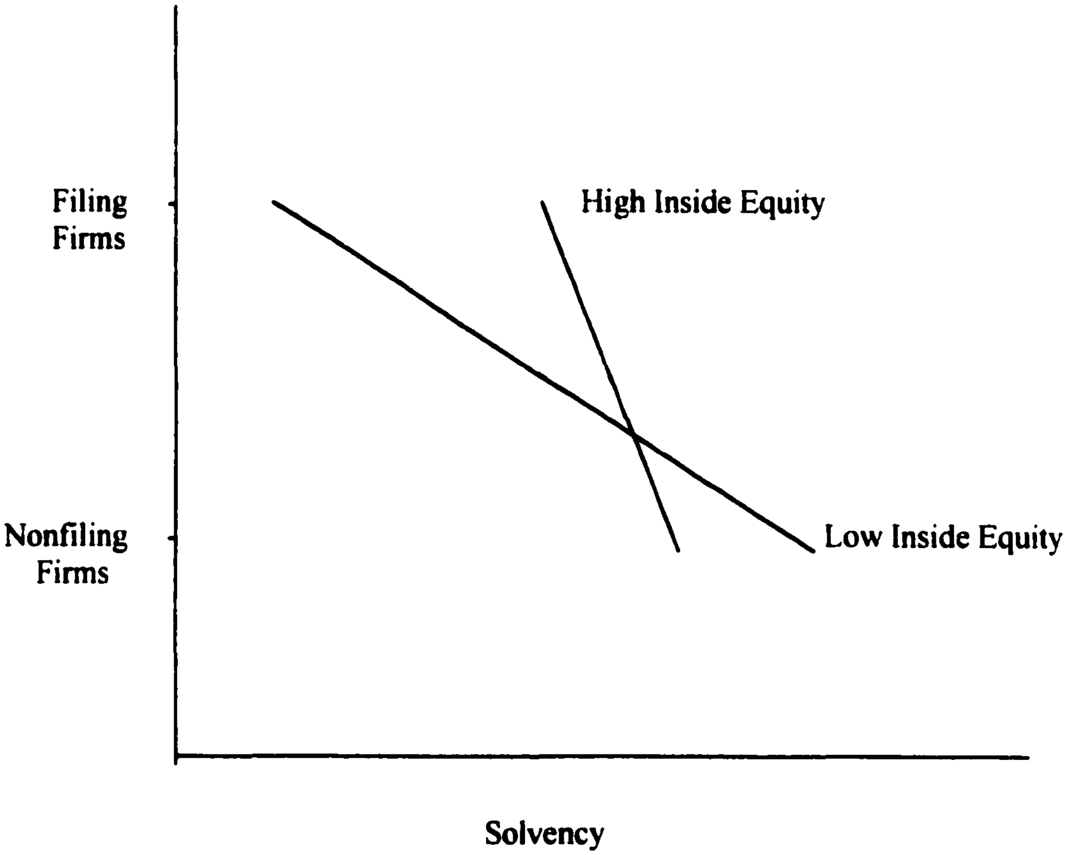
Of primary import, the product term incorporated in the model (inside equity x solvency) is significant and negative ($b = -.01$, $p < .05$ in both Model 3, Table 6a and Model 3, Table 7a). The precise form of this interaction is presented in Figure 1. As can be seen, filing firms are less solvent when inside equity is low than when it is high. The relationship is reversed among nonfiling firms, where those with high levels of inside equity are less solvent than those with low levels of inside equity. In either case, the slope of the low inside equity line is more negative than that of the high inside equity line. Accordingly, Hypothesis A1 is confirmed.

Hypothesis A2 similarly anticipated that high levels of outside equity would decrease the negative relationship between solvency and filing, in comparison with low levels of outside equity which would increase the negative relationship. Thus, again, firms with high levels of outside ownership would file when less insolvent than firms with low levels of outside ownership. Reports of this investigation are presented as Model 4 in Tables 6a and 7a.

Beginning with the model fit statistics, note that virtually no change is realized between Model 4 and Model 2, the pseudo-control model (-2LL = 266.66, Δ-2LL = .123, n.s.). R^2 is identical, and the classification percentage increases by less than one-

FIGURE 1

Inside Equity as a Moderator of the Relationship Between Solvency and the Incidence of Filing


Filing Firms
Nonfiling Firms
High Inside Equity
Low Inside Equity
Solvency

half of one percent (65.91% to 66.36%). Moreover, the product term reflecting the moderated relationship is nonsignificant and trivially negative (b = -.01, n.s.). All of these results are consistent with those summarized in Model 4, Table 7a. Hypothesis A2 is rejected.

General outside board representation, without regard to personal or representative equity stakes or other financial commitments to the firm, is the subject of Hypothesis A3. Here, a personal interest in job retention by members of the board was expected to create incentives to suppress the likelihood of filing, given that an outsider not otherwise tarnished by affairs at the firm, or rewarded by distributions pursuant to a plan of reorganziation, would seek to avoid the ultimate black mark of bankruptcy. Thus, high levels of outside board representation were seen as increasing the negative relationship between filing and solvency compared to low levels of outside board representation.

Model 5 of both Tables 6a and 7a reveals that this hypothesis, too, fails to receive support. In Table 6a, reporting the agency only tests, the –2LL statistic (-2LL = 264.38), while producing a more measurable increment against Model 2 (Δ-2LL = 2.40), is not significant. Again, the classification percentage increases by less than one-half of one percent (65.91% to 66.36%), and R^2 is unchanged at .13. The coefficient of the product term is positive but nonsignificant (b = .02, n.s.). Model 5, Table 7a, reflecting results for the full model, is consistent, although the change in the –2LL statistic is even less meaningful (Δ-2LL = .98, n.s.).

Hypothesis A4 examines the effect of investor board representation on the solvency-filing relationship. Specifically, the impact of external monitoring by direct involvement of those whose stakes are at risk was presumed to be similar to that of equity holdings as set forth in Hypotheses A1 and A2. Thus, high levels of investor board representation were expected to moderate the solvency-filing relationship by decreasing the negative effect of solvency on filing, while low levels of investor board representation were expected to increase the negative effect of solvency on filing.

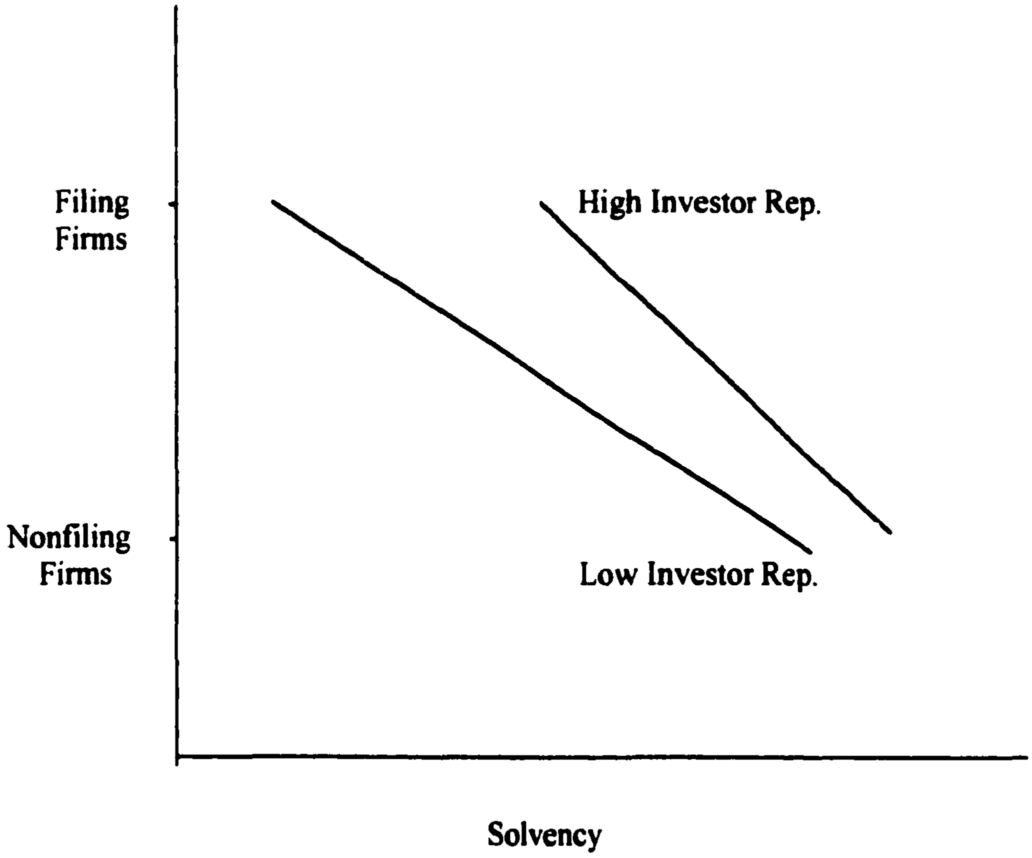
The results of this test are summarized as Model 6 in both Tables 6a and 7a. As can be seen, the different models produce different results. The agency-only model (Table 6a) is not significant. The -2LL increment (Δ-2LL = 1.92) is relatively small, there is no change in either the classification percentage (65.91%) or R^2 (.13). The interaction term also is nonsignificant ($b = -.03$, n.s.).

However, a different result is obtained when the model estimated includes the resource-based variables (Model 6, Table 7a). Here, the -2LL statistic of 251.15 significantly increments the control model (Δ-2LL = 4.69, $p < .05$). R^2 improves to .18. Only a decrease in the classification percentage (from 70.45% to 67.73%) argues against the model. Finally, the product term, investor board representation x solvency, is significant ($b = -.04$, $p < .05$). Hypothesis A4 thus receives partial support, although interpretation must be tempered by the acknowledgment that the precise impact of the moderation apparently is dependent upon the specific composition of model covariates.

With respect to the specific form of the interaction, refer to Figure 2. As this figure indicates, the low investor board representation firms are generally less solvent than those with high levels of investor board representation. However, consistent with the hypothesis, low levels of investor board representation indeed are associated with much lower levels of solvency among filing firms; in other words, the difference in

FIGURE 2

Investor Board Representation as a Moderator of the Relationship Between Solvency and the Incidence of Filing



solvency levels between filers and nonfilers increases as investor board representation decreases. This is precisely the relationship specified by Hypothesis A4.

Hypothesis A5 investigates the impact of creditor board representation. High levels of creditor board representation were expected to increase the negative relationship between solvency and filing among filing firms but to decrease that relationship among nonfiling firms. This result was based upon the potential for violation of absolute priority among highly solvent bankrupt firms that might operate to reduce the recovery rate of creditors.

Model 7 of Tables 6a and 7a reports the results of this hypothesis test. In both cases, Hypothesis A5 is rejected. The increment to –2LL (Δ-2LL = 1.33, n.s., per Table 6a) is not statistically significant, and the classification percentages actually decrease in both models (from 65.91% to 65%, and from 70.45% to 67.27%, respectively). R^2 is unchanged or only marginally increases with respect to the agency-only and joint model tests, respectively.

Hypothesis A6 predicted that the percentage of secured debt in the firm's capital structure would moderate the solvency-filing relationship by decreasing the negative association between the two in firms with high levels of secured debt, but increasing the negative relationship in firms with low levels of secured debt. The priority position, and the asset protection, afforded these creditors was expected to lead to a preference for filing before solvency seriously deteriorated.

Model 8 (Tables 6b and 7b) shows that the –2LL increment is significant (Δ-2LL = 5.58, $p < .05$ per Table 6b), although the classification percentage decreased slightly

FIGURE 3

Secured Debt as a Moderator of the Relationship Between Solvency and the Incidence of Filing

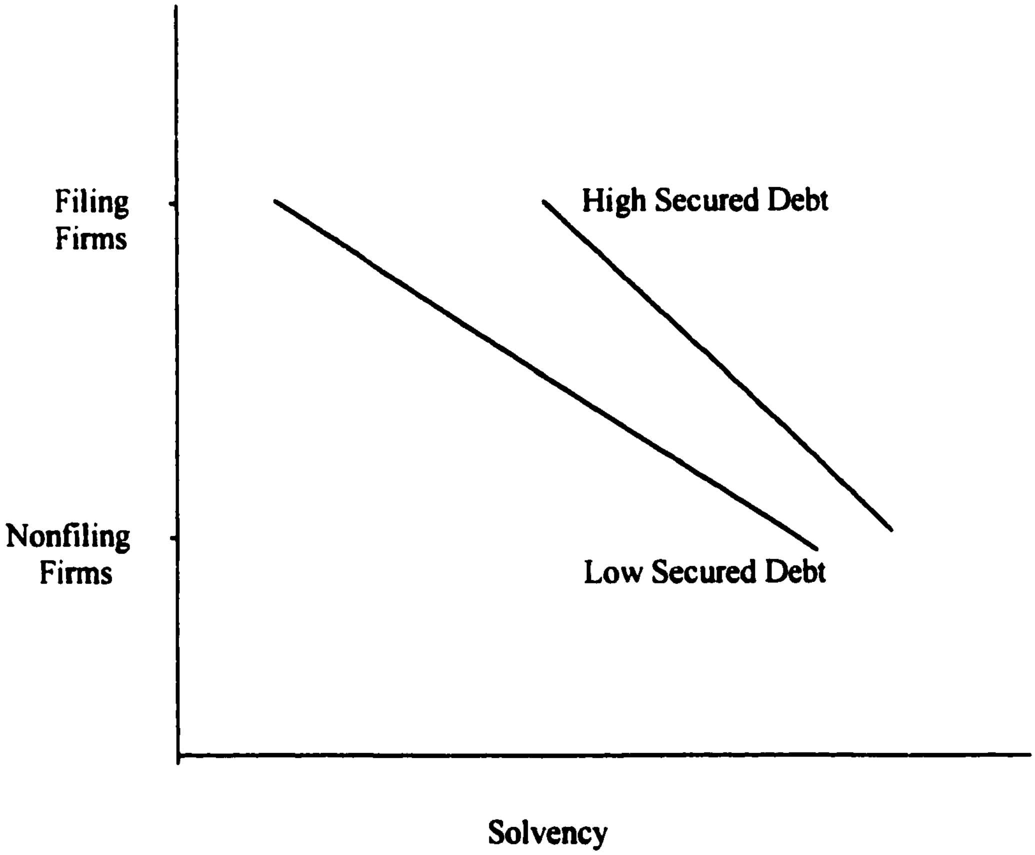
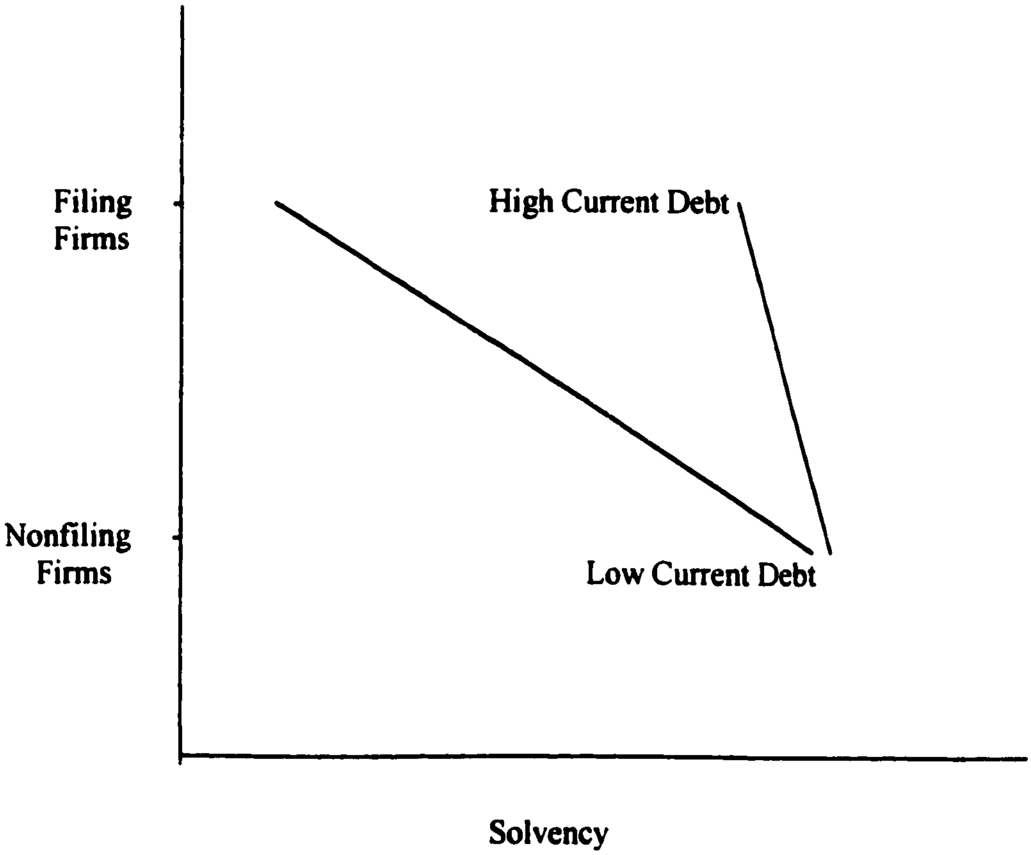


FIGURE 4

Current Debt as a Moderator of the Relationship Between Solvency and the Incidence of Filing



high levels seemingly decrease that effect even more substantially (and more sharply than was the case with secured debt). In that sense, the result was surprising, given that secured credit seemed to be the more incentive-intense form of indebtedness (Mann, 1995, 1996, 1997a, 1997b). Hypothesis A7 thus is supported.

Hypotheses A8a and A8b shift the focus from the solvency-filing relationship to the relationship between ownership character and filing. The length of the CEO's employment contract is seen as a moderator of the relationship between inside or outside equity and the bankruptcy decision. The bifurcation of the equity concentration concept required separate tests of this interaction in order to segregate the impact of low and high levels of inside or outside equity, respectively.

Thus, in Hypothesis A8a, high levels of inside equity were expected to make filing less likely as the length of the CEO's employment contract increased, but low levels of inside equity were predicted to increase the likelihood of filing under such circumstances. Model 10 (Table 6b) indicates that this hypothesis is not supported. There is not a significant increment to the -2LL statistic (Δ-2LL = 1.61, n.s.), although the classification percentage (67.27% vs. 65.91% in the control model) exhibits a slight increase. The coefficient of the multiplicative term likewise is nonsignificant (b = -.01, n.s.). These results are confirmed in the full model (Table 7b, Model 10), where, in addition, no improvement in the classification percentage is observed.

Finally, Hypothesis A8b anticipated that employment contract length would moderate the relationship between the extent of outside equity and filing such that high outside equity firms in which the CEO's employment contract was lengthy would be more likely to file, while the opposite would be true when the employment contract was only of short-term duration. As before, this hypothesis was not supported. As shown in Model 11, Table 6b, the -2LL increment is barely discernible (Δ-2LL = .74, n.s.), and although the classification percentage improves modestly (from 65.91% to 67.27%), there is virtually no improvement in R^2. Hypothesis A8b is rejected.

Taken as a whole, the agency hypotheses seemed to provide enhanced explanatory potential as compared to the resource-based hypotheses. Clear results were obtained for the moderating effects of inside equity, secured debt and short-term debt. The results relating to the impact of investor board representation were somewhat more equivocal, yet still supported the hypothesized relationships. Some of the nonsignificant findings may reflect deeper and more complex relationships than originally posited, as will be more fully discussed below in Chapter 5. Moreover, the impact of solvency on filing is shown to be more complex than a direct resource-based prediction would imply. Instead of a merely negative relationship between solvency and filing that holds in all circumstances, the results of the agency analyses are indicative of different relationships contingent upon the nature of the variables under consideration. These are significant findings validating the importance of this research.

In Chapter 5, I summarize the results and discuss the implications of the findings. Consideration is given both to directions for future research and to practical applications for management faced with organizational distress.

CHAPTER 5

Discussion

This chapter elaborates upon the findings presented in Chapter 4. The organization of the chapter initially is based upon the respective theoretical frameworks investigated in the study. Thus, the first two sections will discuss the implications of the resource-based and agency theoretical findings. Because the control variables implicitly relate to resource-based arguments, their implications will be discussed in conjunction with the resource-based hypotheses. Thereafter, a section devoted to directions for future research and the managerial implications of the study will be presented. A brief conclusion section ends the chapter.

Resource-based Findings

Intuitive explanations of the bankruptcy decision often are predicated upon the notion that firm solvency is the primary, or perhaps only, indicator of the firm's capacity to survive. The question is what causes insolvency. One potential framework for investigation of this issue is the resource-based theory ("RBT") of the firm (Barney, 1986, 1991; Conner, 1991; Wernerfelt, 1984), which focuses on firm resource stocks and examines the relationship between such stocks and the success of the firm. In the context of organizational distress and corporate bankruptcy, the path from resources to the filing decision can be traced as follows: Resources influence the ability of the firm to compete successfully, which in turn can be expected to lead to greater or lesser degrees of financial success (solvency). Bankruptcy or survival thus is the natural outcome of this progression.

Competitive success, however, is premised upon the aggregation of specific kinds of resources, not just “enough” resources. According to the RBT, only those resources that are relatively impervious to duplication, and that are themselves of significant value, are capable of conferring competitive advantage (Barney, 1991). Thus, consideration of, and inquiry into, the RBT’s implications often focuses upon intangible factors such as firm knowledge (Kogut & Zander, 1992) and learning (Teece, Pisano, & Shuen, 1997), as well as culture (Barney, 1986b) and human capital (Amit & Schoemaker, 1993).

Bergh (1995) used this reasoning to argue that the resource stock of the firm could be employed in order to obtain two different kinds of economic benefits: 1) cooperative and strategic, and 2) competitive and financial (see also Hill, Hitt, & Hoskisson, 1992; Hoskisson, Hill, & Kim, 1993). The former is based upon the opportunity to share specialized resources, while the latter arises from internal capital market efficiencies, or the ability to reallocate capital more efficiently than through external investments. The relationship of this logic to firm-level differentiation forms the basis of Hypotheses R1a and R1b.

Platt (1985) presented a parallel argument within the specific context of organizational distress in which resource imbalances were related to the incidence of bankruptcy. Relating his thesis to the RBT leads to the proposition that over- or under-investment in different asset bases inhibits the development of competencies from which competitive advantage could be derived. Success and survival thus are dependent upon the proper mix of investment. Hypotheses R2 and R3 tested these assumptions.

Finally, previous research into the bankruptcy phenomenon investigated the relationship between external constituency affiliations with the firm and firm success (Daily, 1995, 1996; Daily & Dalton, 1994a, 1994b, 1995). Specifically, connections between critical constituencies and the firm, particularly with respect to posited asset flows and other forms of financial and managerial support, were seen as contributors to firm survival. Firms lacking such connections were more likely to fail because they could not draw upon the resources offered by such stakeholders. As presented in the previous studies, this argument was based upon resource dependence theory (Pfeffer & Salancik, 1978), but the obvious relationship to the RBT is no less compelling. Thus, a firm's ability to draw upon the resources offered by critical external constituents can be considered a predictor of survival, and the more direct the ties between the organization and such stakeholders, the greater the flow of resources and the more likely survival becomes. This logic was the basis of Hypothesis R4.

A closer examination of these arguments reveals potentially different interpretations of, or subtle variations upon, the underlying assumptions of the RBT. Hypotheses R1a and R1b were based explicitly upon the literal exposition of the RBT with respect to competency development and the notion of resource specialization and inimitability. By contrast, the remaining hypothesized relationships can be interpreted as well in a manner consistent with the notion of resource sufficiency. There is an additional potential distinction between Hypotheses R2 and R3, on the one hand, and Hypothesis R4, on the other, in terms of the source of resource development. The former cases can be read as emphasizing the nature of internal investment patterns, while the latter focuses upon external relationships and flows of capital from external sources into the firm. Testing the RBT hypotheses thus offers the opportunity to assess these additional perspectives on firm survival and to judge whether survival is a function of asset specificity, asset sufficiency, asset source, or some combination thereof.

And, of course, to return to the theme with which this section began, the implicit assumption of all of the foregoing, indeed of the RBT itself in the present context, is that firm survival ultimately is rooted in solvency, the natural consequence of the firm's relative success in building or exploiting its resource stock. Therefore, unlike the agency hypotheses to follow, the present analysis of the RBT hypotheses fundamentally is based upon the notion that choice is not a critical consideration. In other words, firms possessing at least adequate resource bases, or those who are able to leverage existing competencies (Barney, 1991), survive. Moreover, inclusion of the control variables (size, leverage, and solvency) as singular terms provides an implicit test of this assumption at an even more elemental level, one that can be interpreted as suggesting that the specific form or source of investment is immaterial, and that only raw asset bases matter.

Hypotheses R1a and R1b, as summarized above, predicted that related diversification would be negatively related to filing and that unrelated diversification would be positively related to filing. The rationale for these arguments was that related diversification facilitated the sharing of specialized resources, and therefore the development of inimitable competencies, while unrelated diversification, even if realizing significant financial economies, would not lead to the creation of such resources (Bergh, 1995, 1998). In the case of the latter, any firm engaging in unrelated diversification could achieve similar results; financial economies are simply not sufficiently specialized to confer competitive advantage.

As detailed in Chapter 4, the results of this test strongly supported Hypothesis R1a. In every model in which it was included, the related diversification variable was negatively and significantly related to filing. The test of Hypothesis R1b was relatively less clear, in that the coefficient of the unrelated diversification variable was negative in the RBT-only model, but positive in the pseudo-test of the full sample (see Tables 7a and 7b). The latter was, of course, the expectation, but in no case was the coefficient statistically significant, thereby leading to rejection of Hypothesis R1b.

Although the results would have been stronger had support been found for Hypothesis R1b in conjunction with Hypothesis R1a, the strong findings for the latter proposition are important. In all models in which the related diversification variable was entered (e.g., Model 2 of Table 5, and Models 2-11 of Tables 7a and 7b), the coefficient was negative and significant at either the .05 or .01 level. Indeed, in the case of the full sample tests reflected in Tables 7a and 7b, the coefficient generally achieved significance at the .01 level, likely as a result of the increase in statistical power. These results clearly indicate that the incidence of bankruptcy is associated with low levels of related diversification. From an RBT standpoint, therefore, this outcome is consistent with the notion that related diversification, because of opportunities afforded to share resources and competencies and perhaps develop additional competencies, facilitates the creation of a resource base from which competitive advantage can be derived. Thus, the development of a resource base composed of proprietary resources, including knowledge, skill, and experience (Kogut & Zander, 1992), and the concomitant creation of competitive advantage, enables the firm to survive even in the face of contemporaneous financial distress. Financially distressed organizations that do not pursue a strategy of related diversification, however, do not acquire such a resource base, and therefore are unable to survive (Bergh, 1995, 1998).

In the case of the former, even though we can say that the pursuit of financial economies through unrelated diversification does not contribute to bankruptcy, as both a significant positive coefficient and a literal reading of the hypothesis might suggest, we cannot claim that their cultivation supports firm survival. Were this true, a negative and significant coefficient would have been observed. Instead, the evidence here clearly suggests that, among distressed organizations, no significant relationship exists between unrelated diversification and the incidence of bankruptcy. This observation is consistent with the notion that financial economies accruing from unrelated diversification do not contribute to the accumulation of inimitable resources from which competitive advantage may be gained, and thus do not contribute to firm survival. This is true even though we can simultaneously note that cultivation of such economies does not necessarily contribute to decline.

However, there is another sense in which the lack of a significant finding with respect to unrelated diversification is important in evaluating the implications of the RBT perspective. First, note that confirmation of Hypothesis R1b (significant positive) would suggest either that no resources sufficient to confer competitive advantage and long-term survivability are generated by unrelated diversification, or that unrelated diversification in fact contributes to failure, or both. A significant negative coefficient, however, would suggest that unrelated diversification, like related diversification, facilitates firm survival. This result might be seen as evidence contradicting the RBT interpretation of diversification.

Another explanation for such a finding follows from the notion of environmental capacity (Hambrick & D'Aveni, 1988; Hannan & Freeman, 1977) and its implications for organizational success. In this view, bankruptcy might be seen as a function of growth opportunities available in the industry in which the firm competes. In low growth or negative growth environments, firms might be expected to engage in unrelated diversification in order to escape from their primary environments. Consequently, unrelated diversification would increase the likelihood of survival under such circumstances because organizational growth prospects and cash flows would be more balanced, or at least less concentrated in stagnant or threatening environments.

As suggested, evidence consistent with this analysis would be found in a significant negative relationship between unrelated diversification and filing, such that surviving firms, but not the filing firms, would have high unrelated diversification scores. In fact, as Table 4 indicates, there is virtually no difference between the two sets of firms with respect to unrelated diversification. Even more important, both groups exhibit higher levels of unrelated diversification than related diversification, but only the surviving organizations appear to pursue related diversification to any significant degree as well. If unrelated diversification, *in and of itself*, truly facilitates firm survival, either through the development of financial economies (Bergh, 1995) or the opportunity to spread risks and to partake of more favorable environments, this result should not hold. The difference between the two groups instead lies in their respective levels of total diversification, and is comprised solely of the difference in their respective levels of related diversification. Apparently, it is the incremental benefit associated with the latter that may contribute to survival. Considered in this fashion, including the implications of the additional data on unrelated diversification, the rejection of Hypothesis R1b simultaneously with the acceptance of Hypothesis R1a is not only not surprising, but rather provides additional support to the RBT interpretation of the relationship between related diversification and the incidence of bankruptcy.

An additional consideration is worthy of discussion at this juncture. In their empirical investigation of large corporate bankruptcies, LoPucki and Whitford (1993a: 748) found that "[the reorganizing] companies did not start new businesses, make acquisitions not integrally related to the company's existing business, expand significantly the existing business, or engage in other high risk activity. There seemed to be a cultural norm that such investments were inappropriate for a company in reorganization." It is possible to interpret the findings of the present research with respect to diversification as either broadly consistent or partially inconsistent with LoPucki and Whitford's (1993a) conclusions, although this study, of course, centers upon prepetition operations rather than postpetition operations. To the extent related diversification is read to be the rough equivalent of "existing businesses," or even "new businesses," the prepetition diversification strategy of firms eventually filing for bankruptcy can be viewed as consistent with LoPucki and Whitford's (1993a) findings. Thus, the filing companies of this sample, in other words those who eventually pursue reorganization one year hence, appear to mirror the operational profiles of their reorganizing counterparts from LoPucki and Whitford's (1993a) sample *prior* to bankruptcy in apparently not engaging in expansion. Perhaps the "cultural norms" to which LoPucki and Whitford (1993a) refer are a product of prepetition operational strategy as well as of procedural regularity in bankruptcy proceedings.

Alternatively, if reorganizing companies do not make acquisitions that are not "integrally related" to their existing businesses, then perhaps they make acquisitions or otherwise expand into fields that are "integrally related" to present areas of endeavor. In such circumstances, surely we would expect to find higher levels of related diversification and lower levels of unrelated diversification. In fact, the exact opposite is true of the filing companies in this sample. To this extent, the results presented here may be at least partially inconsistent with those of LoPucki and Whitford (1993a).

However, bearing in mind the temporal distinction between the two studies, it is possible that the postpetition operations observed by LoPucki and Whitford (1993a) arose precisely because of these firms' prepetition diversification strategies. Any business segment expansions might already have been undertaken prior to the reorganization, and with most of these occurring in markets that were not "integrally related" to existing operations, no further ventures in that direction were undertaken while the case was pending. Again, the "cultural norms" of the reorganization process may be reinforced or caused by company-level characteristics arising from prepetition strategies. In the case of either of the foregoing perspectives, however, it seems at least possible that the shadow of Chapter 11 falls on management's prepetition diversification decisions, at least to the extent of the "cultural norms" of reorganization and management's expectations with respect to permitted investment patterns in accordance therewith. Full analysis of these relationships must await a longitudinal study incorporating the organization's prepetition history as well as its postpetition operating characteristics.

Finally, it should be noted that the results of this research do not rule out the possibility that survival is a joint function of both related and unrelated diversification.

Thus, it may be that a distressed organization must pursue some combination of the two, in one case building inimitable competencies and in the other evading declining markets. However, since both variables were entered simultaneously in the models estimating the direct relationships of each to filing, thereby partialling the effects of one when determining the influence of the other, and since only related diversification returned a significant coefficient when so considered, the dominant influence on the filing decision clearly derives from related diversification.

Hypothesis R2 examined the relationship between an organization's cash ratio, or the percentage of cash and cash equivalents to total assets, and the incidence of filing. As discussed above, the rationale for this hypothesis is grounded in the notion that improper or imbalanced investment patterns may deprive the firm of critical resource bases and thereby contribute to decline and failure (Platt, 1985). In the specific instance of the cash ratio, particularly when considered against the backdrop of organizational distress, insufficient liquidity evidenced by a low ratio might be expected to imperil firm survival. A low cash ratio might be a result of overinvestment in fixed assets, poor cash flow, or both. The predicted relationship between this measure of liquidity and filing was not supported. In none of the models testing this relationship (e.g., Model 3 of Table 5, and Models 2-11 of Tables 7a and 7b) was a significant coefficient obtained. Again, perusal of Table 2 reveals that almost identical cash ratios existed between bankrupt and nonbankrupt firms in the sample.

Similarly, Hypothesis R3 argued that the relationship between the firm's ratio of current assets to fixed assets and bankruptcy would be negative. This hypothesis effectively tests a broader conception of liquidity and the pattern of investment in either (presumably) productive assets or liquid assets than Hypothesis R2's test of the cash ratio. Here again, the hypothesis was not supported (Model 4, Table 5), although Table 4 indicates that a measurable, if not statistically significant, difference exists between the filing and nonfiling firms with respect to this variable.

As discussed above, both Hypothesis R2 and Hypothesis R3 provided de facto tests of an internal sufficiency interpretation of the RBT. Their rejection provides some evidence that, consistent with the narrower conception of the RBT, absolute resource stocks do not ensure competitive success. Rather, something more is required, particularly asset stocks that are proprietary and inimitable (Barney, 1986a, 1991). These are, of course, but two measures of resource sufficiency, and it is possible that others could be developed that would support the sufficiency conceptualization. On the evidence of this study, however, it seems clear that the opportunity to share competencies and thereby develop expanded capabilities and proprietary resources (Bergh, 1995, 1998) substantially contributes to firm survival among distressed organizations.

Even though Hypotheses R2 and R3 were not supported, the underlying data do present a picture of organizational decline that is important to appreciate. As shown in Table 4, the cash ratios of the two sets of companies were virtually identical, but their respective current asset/fixed asset ratios were different, albeit not statistically different. In particular, the filing firms' mean current asset/fixed asset ratio was higher than that of the surviving firms.

Because of the nonsignificant difference between the group means caution must be exercised in drawing inferences from such evidence. Nonetheless, it may be instructive to examine the basis of the distinction and its potential implications for organizational decline (D'Aveni, 1989; Hambrick & D'Aveni, 1992) and decision making in the shadow of Chapter 11. Specifically, because cash and cash equivalents are only part of total current assets, higher levels of the latter must derive from higher levels of inventories and receivables. This is one possible source of the discrepancy between the bankrupt and nonbankrupt firms' respective cash ratios and current asset/fixed asset ratios. Alternatively, holding constant the two groups' current asset levels, differences in the ratio also may be attributable to distinct levels of fixed asset investment, where fewer fixed assets would lead to an increase in the current/fixed ratio. In short, the difference between bankrupt firms and their surviving counterparts is not their absolute liquidity, in terms of cash or cash equivalents, but rather their relative inability to convert inventories and receivables into cash, their relative lack of investment in income-generating fixed assets, or some combination of the two.

Bankruptcy scholarship is divided on the question whether Chapter 11 inefficiently facilitates overinvestment (e.g., Gertner & Scharfstein, 1991) or promotes efficient resolution of financial distress (e.g., Baird, 1991; Bebchuk & Picker, 1992; Berkovich & Israel, 1991; Harris & Raviv, 1993). Mooradian (1994) offers a compromise reading of the incentive patterns afforded by reorganization law in his argument that Chapter 11 is efficient to the extent that efficient firms reorganize and continue operations, often outside of court, but inefficient to the extent that inefficient firms reorganize rather than liquidate. Even so, managements of inefficient firms filing for bankruptcy do not so much avail themselves of a safe harbor "reward" (see Bradley & Rosenzweig, 1992), but rather, "acting in the interest of equity holders, choose the best of a set of bad alternatives, reorganization..." (Mooradian, 1994: 1406).

There is also a split of opinion with respect to bankruptcy law's impact on the risk preferences of management and equity holders. Recognizing that insolvency implies that equity interests are without value because of the need to satisfy the prior claims of creditors, some commentators argue that management and shareholders will attempt to forestall creditors' remedies and increase risky investment in order to attempt to recoup the value of their investments (Bergman & Callen, 1991; Brunstad & Sigal, 1999; Easterbrook, 1990; Gertner & Scharfstein, 1991). In effect, this is a form of the previously discussed tendency toward overinvestment. However, others argue that the reallocative nature of reorganization law in fact provides incentives to equity and management to reduce risk and preserve firm value (Adler, 1996; LoPucki & Whitford, 1993a; Mooradian, 1994), thereby increasing the likelihood of residual recovery.

Again, some interpretive caution must be exercised given that these propositions were not formally tested in the present study and no statistically significant differences exist with respect to the companies' cash ratios or ratios of current to fixed assets. Nevertheless, the various similarities and differences that do exist hint at answers to some of these questions. As discussed above, the bankrupt companies in this sample appear to differ from the nonbankrupt companies in their current/fixed asset ratios, but not in their cash ratios, suggesting that the bankrupt firms carried greater levels of inventories and receivables, avoided fixed asset investment, or both. Such trends typically would be associated with operational inefficiency (Ross, Westerfield, & Jordan, 1991), and these companies' subsequent bankruptcies then would be consistent with Mooradian's (1994) interpretation of Chapter 11's impact on, and allure for, inefficient firms. "Inefficient" firms seem to be filing more frequently than "efficient" firms do. Both this fact and the relative insolvency of the "inefficient" firms (see Table 2) are consistent with the argument that Chapter 11 inefficiently promotes the reorganization of companies that should be liquidated (Mooradian, 1994).

Moreover, the evidence on diversification and the possibility that the observed difference in current/fixed asset ratios is attributable to the denominator of that ratio rather than to the numerator support the underinvestment thesis (Adler, 1996; see also the evidence adduced by LoPucki & Whitford, 1993a). Total diversification, specifically because of the statistically significant difference in related diversification, is lower among the filing firms than among the survivors (Tables 4 and 5). We should not expect to observe this pattern among companies subsequently filing for bankruptcy if the overinvestment argument is true (Bergman & Callen, 1991; Brunstad & Sigal, 1999; Easterbrook, 1990; Gertner & Scharfstein, 1991); indeed, the opposite result should obtain were this the case.

Even more support for underinvestment would exist if, upon further investigation, the current asset/fixed asset ratio discrepancy is found to arise from differences in fixed assets. The present research did not include data on this particular issue. Depending upon the industry in which the firm competes, assets of this nature may be the basis upon which future productivity and expansion hinge. Among the filing firms, then, underinvestment in fixed assets relative to surviving firms would decrease the denominator of the current/fixed asset ratio, thereby leading to a larger ratio.

Finally, it should be noted that this pattern of investment activity also would be consistent with the view of bankruptcy as the terminus of a "downward spiral" (D'Aveni, 1989; Hambrick & D'Aveni, 1988, 1992). Thus, the failure to engage in productive investment inhibits the firm's development, eroding its competitive position over time. As this process continues, the organization's cash flow position and solvency deteriorate, and further reductions in investment activity are enacted in order to stanch a developing capital hemorrhage.

In sum, the failure to find support for Hypotheses R2 and R3 casts some doubt upon what might be referred to as a "sufficiency" interpretation of the RBT. At least with respect to the measures utilized here, it is not possible to say that resource imbalances predict bankruptcy. However, consideration of the implications of the reorganization process and the incentives afforded by bankruptcy law argue in favor of a more nuanced reading of the underlying data. Bankrupt firms may in fact be underinvesting relative to surviving firms, a thesis that might be tested by investigating the specific nature of the asset investment practices of the two groups. Specifically, the issue is whether bankrupt firms are more likely than survivors to carry higher levels of inventories and receivables, invest less in fixed assets, or both. The ratios employed here do not address this question with precision. Finding that the two sets of companies in fact have different investment patterns potentially would support a broader interpretation of the RBT that would include a "sufficiency" componnent, although it would of course remain possible to interpret such findings in a manner consistent with the more narrow conceptualization of the theory as well (Barney, 1991, 1996).

In Hypothesis R4, the goal of this research was to investigate the role of external constituencies in sustaining organizational vitality (Daily, 1995, 1996; Daily & Dalton, 1994a, 1994b). If external stakeholders with significant commitments in and to the organization are brought into the formal governance system, especially via board representation, and if these stakeholders then adopt an oversight role focusing on the protection of their existing claims, then one outcome we should expect to observe would be an increase in capital and resource flows into the firm. Thus, where such external constituents are concerned, more board representation should translate into more resources and an increased likelihood of firm survival.

As Table 5 indicates, the relationship between joint creditor and shareholder board representation and filing indeed was negative, but not statistically significant. Moreover, Tables 7a and 7b, representing the putative test of the full model, reveals that the creditor and shareholder board representation coefficients are of different signs, with the former being negative and the latter positive. This suggests that creditor board representation militates against filing, but that shareholder representation increases the likelihood of filing. Although the shareholder effect is not statistically significant, creditor representation is weakly significant at the .10 level in most Table 7a and 7b models, and achieves traditional significance ($p < .05$) in Model 6, Table 7a, the test of the interaction between shareholder representation and solvency. In light of these findings, a separate post hoc RBT analysis was conducted to separate the influence of the two variables. The results were consistent with those of Tables 7a and 7b, with a negative, but only weakly ($p < .10$) significant, creditor representation coefficient, and a positive, but nonsignificant, shareholder representation coefficient.

Obviously, these results are suggestive of conflicting creditor and shareholder interests and agendas, an observation that is not surprising given the reality of the reorganization process and the nature of bankruptcy law (see, e.g., Brunstad & Sigal, 1999). However, such an outcome is inconsistent with the RBT as interpreted here, and no other explanation consistent with the results and the theory is immediately apparent. Moreover, much existing research fails to consider the comparative interests of creditors and shareholders, focusing instead only on the latter (Daily, 1995, 1996; Daily & Dalton, 1994a, 1994b). This study thus emphasizes the need to broaden our appreciation of these potentially divergent perspectives and their impact on the bankruptcy decision.

The most interesting aspect of these results is found in the shareholder representation/solvency interaction model (Model 6, Table 7a). This model revealed both a significant product term and a significant creditor representation term. The singular investor board representation coefficient is nonsignificant, and the singular solvency coefficient is significant only at the .10 level. As suggested by some authorities (Jaccard, Turrisi, & Wan, 1990: 26), the singular coefficient considered separately from the multiplicative term of which it is a part specifies the effect of the singular term in the absence of the moderator. In short, the singular term is a measure of the conditional relationship between the variable of interest and the dependent variable if the moderator is equal to zero.

This indicates that, when considered jointly with the effect of investor board representation, firm solvency has little, and indeed no statistically significant, impact on the likelihood of bankruptcy if no shareholders sit on the company's board. If representation exists, however, filing firms with high levels of sharheholder board involvement are more solvent than their low shareholder representation counterparts (see Figure 2). However, given that the creditor board representation coefficient is negative, meaning that filing firms have less such involvement, we can conclude that filing firms with high levels of investor representation do not simultaneously have high levels of creditor representation. Moreover, because high investor representation firms file when more solvent than those with low investor representation, and because creditor representation is negatively related to filing, we can also conclude that the low investor representation firms have correspondingly low levels of creditor representation. In other words, the filing firms with the lowest solvency levels are likely to be those with little or no external constituency board representation.

It should be noted here, however, that no statistically significant interaction between creditor representation and solvency appears to exist (see Model 7, Table 7a). Instead, the singular solvency coefficient, the measure of the conditional relationship between solvency and filing when creditor representation is zero, is strongly ($p < .01$) negatively associated with filing. Thus, absent creditor representation, insolvency increases the likelihood of bankruptcy. Even though no interaction exists, this basic relationship is broadly consistent with the previous paragraph's conclusions.

Viewed in this light, the RBT interpretation of the impact of external stakeholder support and involvement finds at least partial support. The companies opting for bankruptcy generally are insolvent and apparently have little investor or creditor board representation. This is consistent with the prediction of Hypothesis R4. However, we cannot simultaneously conclude that high levels of external involvement necessarily lead to the opposite result; apparently, only investor representation produces a solvency effect on filing, although the absence of creditor representation seems to lead to a higher incidence of bankruptcy among insolvent firms. Thus, the relationship is more complex than anticipated by Hypothesis R4, presumably relating the nature of the external representation to solvency and filing, rather than directly to filing alone. But in general there are grounds for suggesting support for an RBT interpretation of the external costituency link to filing.

Consideration of solvency in the context of external representation leads to the final set of observations regarding the effects of the control variables. As discussed above, the controls provide an unstated and implicit test of a resource explanation of bankruptcy, if not of the RBT itself.

Solvency, of course, is a broadly accepted predictor of bankruptcy, although some firms will file when less insolvent than others (Moulton & Thomas, 1993). The collective results of the analyses performed in this study show that solvency is at best a conditional predictor of the filing decision. Although the solvency coefficient was negative and significant in the RBT models reported in Table 5, the pattern of significance changes dramatically when the agency variables are added and their effects estimated in the same model as the RBT variables (see Tables 7a and 7b). In two-thirds of these models, solvency was either not significant or significant only at the .10 level. Because the agency models included multiplicative terms of which solvency was a component part, the singular solvency coefficients represent the effects of solvency in the absence of the moderator (Jaccard, Turrisi, & Wan, 1990). The weight of the evidence thus appears to support the notion that solvency, in and of itself, is not a strong predictor of bankruptcy, but rather that its influence, if any, derives from the presence of other factors. This outcome supports an agency interpretation of the bankruptcy decision.

Firm size may be related to filing depending upon what one believes about the implications of size. Do more assets facilitate survival by providing "breathing room" and a margin of error unavailable to smaller competitors (Sobel, 1999), or do larger firms expose themselves to more deadweight costs arising from slack resources (Singh, 1986)? The results reported in Tables 5, 7a, and 7b generally provide support for the latter view. Among the RBT models, firm size is significant only in Model 2, the test of diversification. But Tables 7a and 7b, reflecting the agency model results, show that the size coefficient is significant at the .05 level in all but one case. In every model, however, the relationship between size and filing is positive, indicating that larger firms are more likely to file than smaller firms. As discussed in Chapter 4, this was a rather surprising result given that the bivariate correlation between size and filing was negative, albeit only marginally nonzero and thus not statistically significant. This finding clearly shows that resource "sufficiency" is not enough to ensure firm survival, and therefore casts some doubt upon any conceptualization of the RBT that would incorporate critical mass as a component of firm success. The diversification data, if not the asset imbalance data, suggest that the nature rather than the amount of the firm's resources may be the critical determinant of success, and the size findings provide additional support for such a perspective.

There is an additional implication of these findings whose import should not be overlooked. Moulton and Thomas (1993) found that firm size was significantly associated with successful reorganization in bankruptcy (see also White, 1996, finding that reorganizing firms are larger and in better condition than liquidating firms). The positive relationship between size and filing found in this research thus suggests that the filing firms perhaps are entering bankruptcy in better position to negotiate favorable settlement terms than might intuitively be expected. Under such circumstances, bankruptcy emerges as the best of a bad set of alternatives available to managers

(Mooradian, 1994). This observation, however, does not necessarily support the RBT as developed by Barney (1991, 1996) and other theorists espousing the "specialization" perspective on firm success. If anything, these findings might be consistent with a "sufficiency" argument, but even here there is an element of choice that does not fit within RBT confines. Resource perspectives on firm survival seemingly say only that the right kinds of resources lead to competitive advantage and success. In other words, if a firm possesses such resources, it wins; if not, it loses. The interpretation of size posited here implies something more than this, specifically the importance of managerial actions based upon resource stocks, and indeed seemingly only sufficient resources rather than specialized or inimitable resources alone. If true, this implies the need to broaden current conceptualizations of the theory.

Much like solvency, the relationship between bankruptcy and leverage would seem to be virtually a tautology. However, as can be observed from Tables 5, 7a, and 7b, in no model was the leverage coefficient statistically significant. What is especially interesting is that in all cases the relationship between filing and leverage was negative, which implies that the likelihood of filing increases as leverage decreases. This, too, was surprising because the bivariate correlation between the two was positive, as might be expected. However, if we view debt capital as simply one more means of financing the activities of the firm, such that underutilization of debt might imply undercapitalization and consequently underdevelopment of resources and capabilities, the result here makes some sense. Moreover, such an interpretation also may be consistent with the RBT, either in the "sufficiency" or the "specialization" sense of the theory. Further elaboration of the relationship must await additional research, because the nonsignificant results here caution against attaching too much meaning to the observed pattern.

In sum, the specific hypotheses advanced in this research with respect to the RBT were generally not supported. The diversification findings were the clearest indication that resource specialization and shared competencies facilitate the development of a competitive resource base, which in turn may increase the likelihood of survival. The other three RBT hypotheses were not supported, although as discussed above certain constructions of the data might provide at least partial support for the rationale underlying some of the predictions. In some cases, additional investigation must be conducted to determine the nature of the relationships involved. Finally, solvency was shown to be a conditional variable in explaining the bankruptcy decision, while firm size somewhat surprisingly appears to bear a positive relationship to filing. This suggests that, at least among distressed organizations, size represents a deadweight cost rather than a source of strength. Leverage was not a statistically significant factor in the bankruptcy decision, although its negative relationship raises important questions about the relationship between debt and distress.

Discussion now turns to consideration of the agency hypotheses. As with the RBT section, discussion of the agency results will proceed in the order in which the hypotheses were presented. Results of the analyses of these relationships are shown in Tables 6a and 6b, with the full model comparison again provided in Tables 7a and 7b. A section devoted to directions for future research and for managers follows the agency discussion.

Agency Hypotheses

Agency theory concentrates on the relationship between the owners of the firm and its managers, arguing that the separation of ownership from control in the modern public corporation necessarily raises the possibility that managers will act to maximize their own personal utility rather than shareholder wealth (Fama & Jensen, 1983a, 1983b; Jensen & Meckling, 1976). In the context of distressed organizations, particularly those on the cusp of bankruptcy, such tendencies are even more troublesome because they may compromise the interests of both shareholders and creditors (Adler, 1996; see also Brunstad & Sigal, 1999, and references cited therein).

The prospect of bankruptcy, then, implicates traditional agency concerns even as it broadens the scope of those concerns. At issue is the nature of the relationship between managers and shareholders (Fama & Jensen, 1983a, 1983b; Jensen & Meckling, 1976), managers and creditors (Bergman & Callen, 1991; Diamond, 1993; Jensen, 1986; John & John, 1993; Stulz, 1990; White, 1994), creditors and shareholders (Jackson & Scott, 1989; Spatt & Sterbenz, 1993), and between different creditor classes (Jackson & Scott, 1989; White, 1989). Control of the decision process, the extent and character of management's participation therein, the relative alignment of management with controlling interests (Brunstad & Sigal, 1999; John & John, 1993; LoPucki & Whitford, 1993a), and management's potential to shift allegiance over time (LoPucki & Whitford, 1993a; Ofek, 1993), are all relevant to the question of whether, or when, bankruptcy is declared. The hypotheses were designed to capture at least some of these dynamics in the context of agency relationships and incentives arising under bankruptcy law.

Hypothesis A1 examined the impact of inside equity ownership on the bankruptcy decision. In particular, high levels of inside equity ownership were seen as more likely to lead to filing when the firm was relatively less insolvent than would be true in cases where insiders owned little equity. Equity ownership by incumbent management is a widely promoted incentive alignment mechanism (e.g., Jensen & Meckling, 1976). As between managers with significant equity stakes in the firm and those without, the former are posited to be more likely to consider the shareholder value implications of their strategic decisions.

In the context of organizational distress and the realities of the reorganization process, such holdings give rise to clear incentives to file prior to the onset of significant decline. Specifically, the potential for violation of absolute priority ("APR") and the concomitant likelihood of junior claimant, in particular equity, recovery increases with firm solvency (Weiss, 1990). More to the point, when the firm has more assets over which to argue, senior claimants are faced with the decision of permitting junior claimants to share in the reorganization to an extent greater than would be permissible under strict application of absolute priority or attempting to enforce absolute priority over their objections (LoPucki, 1993; LoPucki & Whitford, 1990, 1993a, 1993b). The latter course of action may be costly both in time and treasure, because any intransigence on the part of lower priority claimants ultimately delays settlement, possibly resulting in a decline in asset value, and imposes extra litigation costs on the senior claimants in the form of asset valuation proceedings. Thus, senior claimants have some incentive to "buy" the acquiescence of lower priority classes by permitting them to share in the settlement (LoPucki, 1993; LoPucki & Whitford, 1990, 1993a, 1993b; Weiss, 1990).

Managers with significant equity stakes, then, have every incentive to file when the firm's asset base is still valuable and the likelihood of meaningful recovery is high. Absent an involuntary petition, incumbent management controls the timing of the bankruptcy petition, and as long as the solvency of the firm has not seriously deteriorated, the incidence of an involuntary proceeding initiated by the firm's creditors is relatively unlikely (Jackson & Scott, 1989). Therefore, management will file when equity's expected recovery is maximized. Where management does not own equity in the firm, however, no such incentives exist and management can be expected to extract control rents for as long as possible in order to maximize its own return (Diamond, 1993).

As Tables 6a and 7a indicate, the product term representing the inside equity-solvency interaction is significant, with the specific form of the interaction depicted in Figure 1. As that Figure shows, the general negative relationship between solvency and filing is moderated by the extent of inside equity holdings such that high inside equity firms are less insolvent than low inside equity firms. In short, the relationship between solvency and filing is less negative when insiders own significant proportions of the firm's stock than when their ownership is minimal. Thus, these findings support Hypothesis A1 and its underlying rationale.

It is important to note here the contrasting implications of these findings for governance and the suggestion that managerial equity ownership should be promoted (Jensen & Meckling, 1976). On one hand, the notion that equity may share in a reorganization settlement to a greater extent than strict adherence to the APR would permit might be a positive development consistent with good governance. Just as managerial ownership is posited to align the interests of the firm's executives with those of shareholders (Fama & Jensen, 1983a, 1983b; Jensen & Meckling, 1976), in the context of organizational distress and bankruptcy the same incentive alignment process operates to motivate management to file before the firm's asset value declines significantly. In so doing, managers arguably are acting against type by foregoing the opportunity to appropriate control rents alone (Diamond, 1993), while at the same time placing all shareholders in a position to maximize the reorganization value of their claim in a relatively more solvent debtor (Weiss, 1990).

On the other hand, this process results in a transfer of wealth from debt to equity (Adler, 1996; Brunstad & Sigal, 1999; Weiss, 1990). Because the debtor organization also is relatively solvent, management is more likely to align with equity interests over creditor interests (LoPucki & Whitford, 1993a). Recognizing this, creditors may be inclined to demand a higher risk premium when negotiating debt contracts with firms so situated, potentially over and above standard bankruptcy risk premia (Bergman & Callen, 1991; John & John, 1993). Consequently, the firm's cost of capital and its debt service costs can be expected to increase relative to that of other firms without this governance/solvency profile, which in turn may increase the firm's ultimate likelihood of failure. These observations, of course, are beyond the scope of the evidence offered by this study, and therefore cannot be confirmed at this time.

The empirical data presented here, however, do provide an additional basis of concern with respect to the governance and agency effects of inside equity ownership among distressed firms. Note first that Table 4 indicates that filers, as a group, actually have lower average levels of inside ownership than nonfilers, although the difference is not statistically significant. This is, of course, simply a mean comparison without holding constant the effects of other variables, but the inside equity coefficient obtained in all models is negative and significant, which also supports the notion that filing firms generally have lower levels of managerial ownership. That filing firms also are significantly less solvent than the survivors merely serves to emphasize the potentially inadequate incentive alignment structures of these firms (Jensen & Meckling, 1976).

If true, does this not support the importance of binding managers to owners through stock ownership, especially when survival is on the line? Here, consideration of different solvency states in conjunction with ownership highlights additional concerns regarding the timing of the bankruptcy decision. For example, Figure 1 shows that nonfiling firms with low levels of inside equity actually are more solvent than those with high levels of inside ownership, even though the bankrupt firms with significant inside ownership are more solvent than the surviving firms with little inside ownership. There is less difference in the solvency states of filers and nonfilers among the high inside equity firms than is true of the low inside equity firms.

The fact that bankrupt firms whose managers own little equity are dramatically more insolvent than both their nonfiling counterparts and the filing firms with high levels of inside ownership seems to confirm the observations of the penultimate paragraph regarding the importance of managerial equity. Thus, managers without equity stakes seem to be acting to maximize control rents by delaying the filing decision (Diamond, 1993). Without the prospect of sharing in the reorganization settlement through equity participation, these managers indeed may be pursuing the only economically feasible course (Mooradian, 1994).

Yet the balance of the results suggest that inside ownership may not be an unmitigated positive development. That high inside equity ownership apparently makes little difference in the solvency of the firm seems to imply risk aversion and avoidance of potentially profitable investment, which would be consistent with the underinvestment problem discussed above (Adler, 1996). In other words, executives with significant equity stakes may be deciding to conserve value against a prospective reorganization settlement rather than engaging in the kinds of activities that might yield long-term returns and enhanced survivability. The higher solvency levels among nonfiling firms with little inside equity appear to reinforce this supposition, and also are consistent with previous research establishing the existence of an inverse-U shaped relationship between firm value and managerial equity (McConnell & Servaes, 1990).

The bivariate correlations from Table 3 give rise to similar concerns. Inside ownership is negatively related to all of the putative external board control variables at a significance level ($p < .001$) that leaves little doubt as to the nonincidental and nonchance nature of the observed relationships. Thus, where managers of distressed organizations are able to accumulate significant investments in their firms, both creditor and external equity representation on the board declines. General outside participation on the board also declines with increases in inside equity, which, in conjunction with the investor and creditor representation findings, implies that these firms may pack their boards with insiders at the expense of independent outsiders or those with financial claims or interests in the firm.

When these observations are considered in light of the solvency-equity-filing relationships noted above, managerial opportunism and entrenchment emerges as a predominant concern. As will be shown below, the implications are even clearer when viewed against the backdrop of Hypotheses A2 through A5, all of which concern the relationship between filing, solvency, and various board or equity control interests. Of these, only Hypothesis A4 derives even partial support from the data included in this study. We can conclude from this that outside equity concentration (A2), general (i.e., nonequity) outside board representation (A3), and even creditor board representation (A5) have no impact on the timing of the bankruptcy decision with respect to the solvency of the firm when filing is elected. This leaves managerial equity as the primary determinant of filing relative to firm solvency.

Hypothesis A4, the exception to the general pattern of nonfindings, investigated the impact of investor board representation, positing that high levels would minimize the negative relationship between solvency and filing. In other words, investors might be expected to use their positions on the board to restrain control rent maximization by management (Diamond, 1993) and any corresponding asset value deterioration, instead encouraging filing in more solvent states in order to maximize their own reorganization returns (Adler, 1996; Weiss, 1990). Figure 2 shows that this relationship was observed: Filing firms were more insolvent when investor representation was low than when it was high. Moreover, unlike the case with managerial equity (see Figure 1), high investor board representation firms were always more solvent than the low investor representation firms, regardless of filing status. As discussed in Chapter 3, these results must be interpreted with some caution because they emerge only in the pseudo-test of the full model, which incorporates both the resource-based and agency variables (see Table 5a).

However, they provide at least partial support for Hypothesis A4, even though they are suggestive of conditional relationships.

When one considers the findings relating to Hypotheses A2-A5 in conjunction with those of Hypothesis A1 and the pattern of correlations, the view that inside equity may play a potentially dysfunctional role among distressed firms reemerges. For example, the optimal outcome for shareholders as a group, higher levels of solvency in either filing condition, is obtained only when high levels of shareholder board representation occur. As discussed above, high levels of managerial ownership produced reduced solvency among nonfiling firms as compared with the group of firms in which managers held little stock.

Why the difference if managerial equity always results in better incentive alignment and promotes stewardship of shareholder interests? In fact, one critical distinction relates to the overall pattern of control in these firms, for the correlations suggest that high inside equity ownership will not coexist with high levels of external monitoring via board representation or stock ownership. The higher solvency observed among surviving firms with low inside equity can be explained by the presumed simultaneous presence of external investors on the board, while the lower solvency levels among surviving firms with high inside equity are consistent with Adler's (1996: pp. 198-199) perverse incentive argument:

> "...[B]ankruptcy reallocation reduces management's equity incentive to risk the debtor's assets..., because reallocation gives equity a stake in even an insolvent debtor, a stake management can lose with a foolish investment....
>
> [B]anruptcy reallocation [thus] softens the blow of insolvency to any manager who owns an equity interest in the debtor. This reduced effect on the managers' equity investments lowers the managers' expected costs of leisure and perquisites, and thus dulls management's incentive to work diligently and invest the debtor's assets wisely."

In sum, managerial equity may foster a dysfunctional set of incentives that are not constrained by the simultaneous presence of external monitors. Indeed, the different results obtained in the managerial equity and external equity board representation models are inconsistent with the traditional agency theoretical interpretation of incentive alignment (Jensen & Meckling, 1976), and instead are suggestive of control rent maximization (Diamond, 1993) when inside ownership is high. Among distressed organizations, the evidence here implies that only external equity properly influences managerial behavior for the general benefit of shareholders.

The remaining issue to be addressed in the context of the present discussion relates to the difference in solvency states among filing firms with high versus low levels of managerial ownership. Surely this is some evidence of proper incentive alignment given bankruptcy reallocation favoring the shareholders as a group? Rather than wasting assets in a manner consistent solely with control rent maximization (Diamond, 1993), managers with equity stakes appear to be entering bankruptcy at a time when all shareholders can benefit. We are still left with the problem, however, that such firms apparently lack external control mechanisms and a general pattern of shareholder wealth maximization (again considering the lower solvency of surviving firms with high inside equity). The evidence for the incentive alignment power of managerial stock ownership thus is ambiguous under such circumstances.

Moreover, a different explanation predicated upon the reallocation principle remains consistent with control rent maximization. Recall that one of the reasons reallocation obtains among more solvent firms entering bankruptcy is the prospect of a lengthy withholding of consent to the plan of reorganization by lower priority classes.

With more at stake, the higher priority claimants "buy" a peaceful and less costly settlement (Weiss, 1990). Although managerial replacement has been observed among declining organizations prior to the date of filing (Gilson, 1989, 1991; LoPucki & Whitford, 1993b), filing firms with high inside equity ownership are unlikely to have experienced such turnover. Had this occurred, the new management team would be unlikely to have accumulated a significant equity stake in a relatively short time period. Alternatively, if turnover occurred as a result of pressure brought by significant investors who then assumed managerial responsibility, the research protocol employed in this study would have classified such holdings as "outside equity." Thus, we can assume that the high inside equity firms are those with longstanding managerial teams who, as discussed above, are not opposed by external monitors. Under such circumstances, it is possible that the price of settlement would include not only equity sharing but also maintenance of the incumbent management team's positions. Senior claimants then would be placed in the position of deciding between conceding or attempting to exercise potentially uncertain legal rights to replace management during the pendency of a Chapter 11 reorganization (LoPucki & Whitford, 1993a; see also *In re Johns-Manville Corp.*, 801 F.2d 60 (2d Cir. 1986), concerning shareholder rights to replace management during reorganization). However, retention of existing management may impair the post-bankruptcy performance and prospects of the firm (Hotchkiss, 1995), highlighting the critical nature of any such development.

Finally, it should be noted that other means may exist by which managerial equity effectively can be segregated from general shareholder ownership, such that management disproportionately shares in the final settlement. Many firms in this sample employed multiple equity classifications with different voting rights, and in many instances insiders controlled shares with supermajority entitlements. The ownership variables included in this study aggregate across such classifications and reflect the applicable voting power of either insiders or outsiders, even though the actual shares owned might be minimal in either case. The use of tiered equity structures whose voting rights favor management may plausibly facilitate, first, the maximization of insider control on limited investment, and second, the promulgation of a plan of reorganization (and recall here that the debtor, i.e., incumbent management, is granted the exclusive right to propose the initial plan during the first 120 days of the case) that separately classifies equity interests based on voting rights with a corresponding difference in the nature of the settlement rights afforded each. In short, it is at least possible that managers' shares, with, say, ten times the votes per share as compared with general equity, will receive a distribution under the plan corresponding to the discrepancy in voting power. The potential agency costs and wealth transfers arising from such a scenario need hardly be stated.

The premise of the foregoing is that much of the evidence derived from this research may plausibly be read to counsel some degree of caution in accepting managerial equity as a panacea in addressing the agency problem (Jensen & Meckling, 1976). Clearly, a surface reading of the evidence may support the traditional view of the incentive alignment potential of insider ownership. But just as clearly, when the general pattern of results is considered simultaneously with bankruptcy law and practice, a more subtle interpretation emerges that is inconsistent with this view. Indeed, the weight of the evidence may well imply that, among distressed firms, managerial equity has potentially deleterious consequences that can only be addressed through external control.

The importance of external control can be inferred from Hypothesis A4, as already discussed above, and from Hypotheses A6 and A7, which examine the impact of secured and short-term debt, respectively. High percentages of either in the firm's capital structure were posited to result in increased monitoring of and influence on management's behavior. Specifically, with such external control, management will not be able to delay filing in an effort to appropriate control rents and dissipate firm asset value. Secured creditors are among the highest priority claimants against the bankrupt organization, and thus can exert substantial leverage against management merely by virtue of the threat of asset liquidation rather than actual recourse to such remedies (Mann, 1995, 1996, 1997a, 1997b; Scott, 1997). Likewise, short-term creditors possess significant power over the debtor and can act to enforce their control prerogatives as the price for any subsequent extension of the term of the indebtedness (White, 1989).

As Tables 6b and 7b indicate, the product term coefficients incorporating the secured and short-term debt variables are statistically significant ($p < .05$ in most, $p < .01$ in the case of the full model test of the secured debt percentage (Model 8, Table 7b). The specific forms of these interactions are depicted in Figures 3 and 4, representing secured debt and short-term debt, respectively. Consistent with the effect of external shareholder influence, high levels of each type of debt result in higher solvency across filing conditions as compared with low levels of each. Moreover, as predicted, the negative relationship between solvency and filing is increased when neither secured debt nor short-term debt is present in the firm's capital structure. The apparent influence of current debt, it should be noted, contradicts some research suggesting that long-term debt does not differ from short-term debt in its impact on managerial decisions (Ofek, 1993).

Surprisingly, the effect of short-term debt appeared to exceed that of secured debt. In the case of the former, the discrepancy in the solvency of filing firms was much greater than was true with respect to the latter. In other words, the use of short-term debt appears to lead to faster filing, or its avoidance leads to more delay in filing and a steeper decline in firm solvency. It is possible to explain the differential effects between secured and short-term debt by reference to the reallocation framework discussed above (Adler, 1996). Secured creditors may not press for a bankruptcy resolution at high solvency levels given that they, as higher priority claimants, may be the victims of any reallocation to lower priority claimants; increasingly, even secured creditors find their contracts are not honored in full during the course of a reorganization proceeding (Adler, 1996; Mann, 1997a, 1997b). Holders of the firm's current debt, on the other hand, typically include unsecured trade creditors and other forms of unsecured indebtedness, precisely the lower priority claimants most likely to benefit from reallocation. Thus, these creditors may be more likely than the secured creditors to seek a solution in bankruptcy either before or immediately upon the advent of a decline in solvency.

The significance of any differential in the pattern of solvency and filing characteristics between the two forms of indebtedness is emphasized by the fact that neither apparently is used in conjunction with the other. Table 3 indicates that secured and current debt are negatively related to one another. This may reflect managerial choice or merely the ability of either class of creditor to extract a negative pledge from the debtor, in other words to prevent the debtor organization from incurring additional debt, particularly that owed to the other creditor class (Mann, 1997a, 1997b). It is also important to note that outside equity ownership likewise is negatively related to the use of secured debt, although no statistically significant relationship exists between outside equity and short-term debt. Although each of these claimant groups seemingly influences the solvency of distressed organizations and consequently the timing of the bankruptcy decision, these relationships may be indicative of competing control interests, with the ascendant claimant in effect squeezing out the others. The potential implications of any conflict that may arise in the process are important if it happens that management aligns with one group instead of others and is able to extract a settlement "fee" as a consequence. The evidence of this study does not directly address this issue.

In the context of the difference between current and secured debt with respect to the solvency levels of filing firms, note that Table 3 also reveals the existence of a positive relationship between current debt and both the cash and current asset ratios. Does this imply that management accumulates liquidity in order to meet the immediate claims of the holders of its short-term indebtedness, either inside or outside of bankruptcy? The existence of liquidity in distressed firms with short-term debt is inconsistent with previous research suggesting that speculative firms will not issue or carry current debt in order to avoid default risk (Guedes & Opler, 1996). That such associations occur would seem to imply that some choice on the part of management is being exercised. There is no evidence to suggest that managers of these firms also happen to own significant equity stakes, but the existence of managerial equity might be consistent with the pattern of results just discussed if we consider the possibility that managers with equity and short-term creditors might strike a bargain whereby bankruptcy was filed prior to the onset of significant financial decline and insolvency in order to maximize the likelihood of reallocation favoring both groups. If so, this would add a different gloss to extant findings concerning what appears to be a slow transfer of managerial allegiance from shareholders to creditors (LoPucki & Whitford, 1993a; Ofek, 1993).

One other issue relating to the question of managerial-creditor alignment concerns its operational consequences. As Table 3 also indicates, creditor board representation positively relates to unrelated diversification. If we assume that any de facto or actual coalition between executives and creditors, in this case the holders of the firm's short-term debt, would result in a seat on the board for a representative of those creditors, such a bargain might accomplish for management what could not be obtained through shareholder control: the ability to pursue unrelated diversification (Baysinger & Hoskisson, 1990; Hoskisson, et al., 1994). The correlation also signifies the potentially variant interests of creditors and shareholders with respect to investment choice (Adler, 1996; Brunstad & Sigal, 1999) and specifically the apparent preference among creditors for presumably risk-spreading diversification.

Hypotheses A8a and A8b extended the notion of managerial and shareholder control to the nature of the CEO's compensation package. Because bankruptcy law permits the debtor organization to assume or reject executory contracts, and because outstanding employment contracts would fall within the ambit of this provision of the Code, the hypotheses projected a relationship between the length of the contract and the willingness, or unwillingness, of either party to force a bankruptcy and reject the contract. In fact, no difference existed with respect to the length of the CEO's contract between bankrupt and surviving firms, and thus no effect was found for either managerial or external equity holdings on the filing decision when contract length was considered. Thus, Hypotheses A8a and A8b were rejected.

That outside equity holders were apparently unable to secure rejection of the employment contract may not be surprising given the somewhat ambiguous results for the overall impact of shareholder control. However, the nonfindings with respect to managerial equity might have been surprising, primarily because the relative strength of this variable seemingly should have resulted in a significant tendency to avoid rejection. Of course, the lack of variance between filing and nonfiling firms as to their CEOs' employment contracts precluded such a finding.

Overall, the results of this study evince fairly strong support for an agency interpretation of the bankruptcy decision. This seems to be true both in the findings that were obtained and in the pattern of nonfindings. Many issues remain for future research, which will be itemized in the immediately following section, but on the whole agency theory seems to provide a more satisfactory explanation for the timing and character of filing than was true of the resource-based hypotheses considered above. With respect to the latter, only the findings concerning related diversification truly supported the theory, itself an important result, but none of the other hypotheses found support. It is true that in their nonsupport these hypotheses carried certain implications for the specific form of the RBT addressed in Hypothesis R1a, but much additional work remains to flesh out more subtle relationships. While the same is true in certain instances with respect to the agency hypotheses, the results probably can be said to be stronger and the implications potentially more meaningful.

Consideration turns now to directions for future research and for managers, which will be discussed in order. In the case of the former, research questions relating to the RBT will be dealt with first, followed by the agency issues. A brief conclusion follows.

Directions for Future Research and for Managers

The first issue under consideration among the RBT hypotheses was the impact of diversification strategy. The findings suggested a significant negative relationship between related diversification and bankruptcy, suggesting that the shared competencies arising from related diversification facilitate survival (Bergh, 1995, 1998). What remains unclear relative to the incidence of bankruptcy is the precise relationship between ex ante and ex post diversification strategies (LoPucki & Whitford, 1993a). A longitudinal study designed to examine operational scope over time, particularly after the bankruptcy petition, would help clarify the extent to which anticipatory reorganization effects influence prepetition choices.

The diversification findings also suggested the need to examine further the relationship between related and unrelated diversification. Specifically, nonfiling firms apparently exhibited high levels of both related and unrelated diversification, whereas their bankrupt counterparts engaged only in the latter to any substantial degree. Is this indicative of some form of interaction between the two strategic choices? The findings might lead us to surmise the existence of a platform effect, if you will, whereby a critical level of interindustry diversification must be engaged in to spread risk, in addition to which the scope of the firm's intraindustry or functionally compatible operations must be expanded in order to develop its competencies. In short, tests of relationship between these variables and other dependent variables, perhaps including solvency, might begin to address this question.

As was noted with respect to Hypotheses R2 and R3, much additional work is necessary to fully understand the nature of investment in distressed organizations. The results of this study imply some differences between filing and nonfiling firms as to their specific liquidity components and their relative investment in either income-producing or short-term assets. Additional research is needed in order to focus on receivables and inventories, particularly the "turnover" rates exhibited by these organizations, and the asset mix of filers and survivors.

Finally, the nature of the impact of creditor and shareholder board representation must be examined further. The evidence suggests that these parties, unsurprisingly, have divergent interests in the firm. The question is the impact each has, both quantitatively with respect to financial impact and qualitatively with respect to strategic choice or direction. Creditors seem to have some greater impact on firm survivability, but the role of each needs additional explication. In particular, future research should examine whether these variables relate to solvency, filing, or operational strategies in a mediated or moderated fashion. For example, creditor board representation positively relates to unrelated diversification, but is this relationship cause or effect? Does the representation variable mediate the relationship between diversification and filing (or solvency), or is mediation found in the opposite direction? Is the relationship moderated in either manner? These are but some of the many questions to be addressed.

These issues also relate to agency theoretical concerns. What, precisely, is the nature of the relationship between managers and external constituents such as creditors? As was discussed above, do managers with equity align with creditors, particularly with the holders of short-term debt on the evidence presented here, and does such alignment then lead to filing or to certain diversification strategies?

Indeed, the entire notion of managerial equity versus external control requires additional elaboration. The results of this research can only support inferences regarding the interplay between managerial equity and either external equity or external board representation. These variables were considered only in conjunction with solvency and filing, and not with each other. Evidence concerning any direct relationships between and among these factors would strengthen the findings presented in this research. The entire notion of incentive alignment or managerial opportunism can be explored in the context of these relationships.

Additional research also needs to investigate the use of multiple equity classifications. Are managers using the supermajority voting rights of separate stock classes to gain effective control of their organizations without as great an investment as other stockholders? Perhaps more important, does this lead to separate classification of claims in reorganization, such that the improved solvency of filing firms observed here does not redound to the benefit of shareholders other than management?

Finally, although no support was found for the influence of the CEO's employment contract length on the timing of the bankruptcy decision, it may be that the wrong variable was chosen to measure the concept. As already noted, no difference existed between filing and surviving firms with respect to the remaining length of the contract. However, perhaps the relevant consideration is the dollar value of the contract, or, in other words, the amount for which the firm remains obligated. This research assumed a necessary correlation between the two, but such may not be the case. The simple reliance upon contract length may mask a deeper relationship.

Managerial implications are clear in at least one respect: Pursue related diversification. Although undoubtedly valuable to firms generally, the opportunity to share competencies and develop proprietary assets sufficient to confer competitive advantage appears to be critical to the survival of distressed organizations.

In a related vein, the data here seem to imply, subject to further investigation as discussed above, that there exists some "Goldilocks" investment level between enough liquidity and either too much or too little, and between enough fixed, or long-term, asset investment and either too much or too little. Although the precise nature of the relationships or appropriate levels of each must await subsequent research, the results of this study hint at operating inefficiencies among bankrupt firms centering upon collection of receivables and maintenance of high inventory levels. Whatever may be found in the future with regard to this issue, intuition suggests that a relationship exists, and good managers must carefully monitor inventory and receivable practices in order to maximize cash flow.

With respect to the agency findings, the implications for managers are more ambiguous. Managers with equity appear to take their organizations into Chapter 11 in better shape than firms whose managers do not own stock. Normatively, we can only hope that such decisions are motivated by a sincere desire to benefit all shareholders as a class, not management's equity stake alone or primarily. In theory, such should be the case, and given reallocation it may well be best for shareholders to enter reorganization quickly rather than after a prolonged decline (D'Aveni, 1989; Hambrick & D'Aveni, 1988, 1992). But the message here should not be seen as contingent upon management's equity position in the distressed firm; indeed, all managers should seek the most expeditious form of reorganization or turnaround available, always with the goal of shareholder wealth maximization.

The question of alignment also presents itself. These data are somewhat ambiguous on this issue, but the rule for the firm's survival and the maximization of the interest of equity holders should be to develop relationships with external constituents, regardless of identity, who can facilitate survival through the transfer of resources (Mitchell, Agle & Wood, 1997; Rowley, 1997). Alienation of critical sources of supply, whether of investment capital or other assets, merely contributes to eventual demise (Sobel, 1999).

CHAPTER 6

Conclusion

This study examined the incidence of bankruptcy and the potential distinctions between filing firms and similarly situated firms that nevertheless manage to avoid bankruptcy. Fundamentally, the question addressed is, "Why do some firms file, while others that could do so just as easily do not and manage to survive?" The methodology used to investigate this question employed a matching procedure in which filing Chapter 11 petitions between 1990 and 1996 were identified, and matching, but surviving, firms were selected based upon size and leverage.

The results that emerged were suggestive primarily of agency differences between the two groups. External monitoring of various kinds, mostly based upon the nature of pressure-intensive debt contracts, seem to result in filing in better solvency states than when such external control is absent. In general, firms in which such external monitors exist are uniformly better off, regardless of filing status, than their counterparts lacking such control mechanisms.

Internal control, specifically the extent of managerial equity, likewise correlates with filing in higher solvency states. Other evidence, however, seems to imply that inside ownership may be an entrenchment mechanism that otherwise does not redound to the benefit of either shareholders or creditors. Even in the case of filing firms whose managers own significant equity stakes, the data are not unambiguous that proper incentive alignment is the ultimate outcome. Indeed, under the interpretations advanced above, it is equally plausible that only management benefits under such circumstances.

Underlying these observations is the potential for conflicting interests among parties to the bankruptcy. It is far from clear that shareholders and creditors, shareholders and management, or even various types of creditors, share a common perspective regarding the optimal solution for organizational distress. Intuition suggests that we might be surprised were this so. Careful consideration of these data seem to imply that management may align with some interests at different times, and consequently pursue certain strategies consistent with those interests. Full understanding of this process must await future research.

Finally with respect to agency theoretical explanations, no support was found for the notion that the length of the CEO's employment contract might influence the timing of the filing decision depending upon the organization's control profile. As pointed out above, this nonfinding may be attributable to the measure used rather than to the concept itself. Use of the contract value rather than its length in subsequent study may prove useful.

Other findings concerned the firms' resource bases. Of primary importance here was the finding that related diversification, offering the promise of shared competencies to facilitate the development of competitive advantage (Bergh, 1995, 1998), is negatively associated with bankruptcy. By contrast, the financial economies associated with unrelated diversification did not predict filing. This strongly supports the underlying premise of the RBT (Barney, 1991, 1996) that inimitable resources are the key to firm survival in the long run.

Resource balance hypotheses were not supported on the basis of the data used here. As suggested above, however, further research may reveal clear relationships once the measures used are refined. Specifically, the evidence of this study hints at potential operating inefficiencies among the bankrupt firms with respect to collection of receivables and inventory turnover, as well as potential underinvestment in income-producing assets.

On balance, the study seems less supportive of the resource-based explanation than the agency theoretical implications investigated here. Important results were found in each case, but the weight of the evidence seems to favor the latter. Much work remains, of course, before we fully understand the nature of the bankruptcy decision. Greater understanding of this critical decision, however, may help us better understand firm success as well as firm failure, with important implications for both theory and practice.

APPENDIX

MEASURES USED TO OPERATIONALIZE THE VARIABLES USED IN THE STUDY

Variable	Explanation
Filing status	Dichotomous; 1 = filing, 0 = no filing.
Assets	Log of total assets
Debt/assets (leverage)	Total debt / total assets
Solvency*	(Earnings before interest and taxes + depreciation - taxes) – interest expense
Related diversification	Entropy measure (Palepu, 1985); see text, pp. 62-64
Unrelated diversification	Entropy measure (Palepu, 1985); see text, pp. 62-64
Cash percentage	(Cash + cash equivalents) / total assets
Current/fixed assets	Current assets / fixed assets
Investor and creditor board representation	(Investor board representatives + creditor board representatives) / total directors
Investor board rep.	Investor board representatives / total directors
Creditor board rep.	Creditor board representatives / total directors
Outside board rep.	Outside (unaffiliated) directors / total directors
Inside equity pct.	Inside equity ownership / shares outstanding
Outside equity pct.	(Institutional ownership + block ownership) / shares Outstanding
Secured debt pct.	Secured indebtedness / total debt
Current debt pct.	Current indebtedness / total debt
Employment contract	Years remaining on existing employment contract

* Measured in millions of dollars.

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VITA

William J. Donoher was born on January 1, 1962 in Altoona, Pennsylvania. Raised in California, he attended California Polytechnic State University in San Luis Obispo, where he majored in finance and graduated *magna cum laude* in 1983. He spent several years working in real estate and mortgage banking, and then attended law school at Washington University in St. Louis, Missouri. Following graduation in 1990, he practiced commercial law, including bank regulation, secured transactions, and workouts, in Phoenix, Arizona, with the law firm of Snell & Wilmer, the largest firm in the southwest. He received his Ph.D. in 2000 from the University of Missouri-Columbia. Currently, he is serving as Assistant Professor of Management at Valdosta State University in Valdosta, Georgia.