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George G. Triantis

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A Theory of the Regulation of Debtor-in-Possession Financing

*George G. Triantis**

I. Introduction

The profile of Chapter 11 of the Bankruptcy Code in public consciousness has surged recently. Other than the automatic stay on the enforcement of claims,[1] the most publicized feature of bankruptcy reorganizations is debtor-in-possession (DIP) financing. Indeed, along with the bankruptcy stay, DIP financing is the motivation for many Chapter 11 filings.[2] Under Section 364 of the Code, a firm in bankruptcy (the debtor in possession) can finance its ongoing operations and investments by issuing new debt that enjoys any one of various levels of priority, all of which rank higher than the firm's prepetition unsecured debt.[3] The debtor's financing arrangements under this section are sub-

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* Assistant Professor of Law and Management, University of Toronto. I wish to thank Barry Adler, Bruce Chapman, Ron Daniels, Marcel Kahan, Lynn LoPucki, Robert Rasmussen, Alexander Triantis and participants at the American Law and Economics Association meetings in New Haven, Connecticut, May 15-16, 1992, for their comments on an earlier draft. I am grateful to Jeff Haar and David Steinberg for their valuable research assistance.

1. 11 U.S.C. § 362 (1988 & Supp. 1991).

2. Newspaper reports of the most publicized Chapter 11 filings often identify the need for DIP financing as a primary motivation. See, for example, Ellen Pollock, *Judge in Campeau Units' Chapter 11 Case Says He Expects to Clear $2.4 Billion Plan*, Wall St. J. A12 (Feb. 9, 1990); William Terdoslavich, *Midway's Chapter 11: Business As Usual, Again*, Tour & Travel News 1 (Apr. 1, 1991); William Terdoslavich, *Continental Applies for $120 Million in Financing*, Tour & Travel News 18 (June 24, 1991).

3. See Part II.

ject to the oversight of the bankruptcy court; in fact, most arrangements require prior judicial authorization.

Despite the frequency and significance of DIP financing, no coherent theory informs judicial determinations under Section 364. The conventional explanation for the provision is that it enables the debtor to offer inducements to lenders in the form of elevated priority without which the lenders would not be willing to invest.[4] Yet, proponents of this rationale fail to explain the cause of this reticence, other than to imply that lenders associate a stigma with bankruptcy that causes them to shy away irrationally from financing profitable projects of firms in bankruptcy. However, DIP lending has expanded rapidly and a growing number of banks have departments that specialize in financing firms in bankruptcy, whether or not the bank has existing exposure to the debtor.[5] The stigma of bankruptcy was probably an early casualty in the emergence of a competitive debt market in this area.

The more serious problem with the conventional explanation is that it is incomplete. Even if priority debt is necessary to induce lending to firms in bankruptcy, this rationale for Section 364 provides no theoretical framework for the judicial oversight of financing arrangements that the section requires. It is not clear what factors the courts should refer to in determining whether a financing induced in this manner is desirable or not. To a large degree, the courts currently defer to the decisions of the debtor in possession and seek only to ensure that the parties negotiate DIP financing arrangements in competitive environments.[6] History somewhat justifies their concern. In the past, DIP

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4. See, for example, *In re Jartran, Inc.*, 732 F.2d 584, 586 (7th Cir. 1984); *In re Glover, Inc.*, 43 Bankr. 322, 324-25 (D.N.M. 1984). See also Paul M. Baisier and David G. Epstein, *Postpetition Lending under Section 364: Issues Regarding the Gap Period and Financing for Prepackaged Plans*, 27 Wake Forest L. Rev. 103, 103 (1992) (saying that priorities for postpetition creditors were created to "counter the understandable reluctance of financial institutions to lend to Chapter 11 debtors"); Daniel V. Goodsell, Comment, *Extending Post-Petition Credit to Reorganizing Debtors: Understanding the Tricks and Traps of Bankruptcy Code Section 364*, 1990 Utah L. Rev. 92, 98-100; Bruce A. Henoch, Comment, *Postpetition Financing: Is There Life After Debt?*, 8 Bankr. Dev. J. 575, 578 (1991); Charles J. Tabb, *A Critical Reappraisal of Cross-Collateralization in Bankruptcy*, 60 S. Cal. L. Rev. 109, 140 (1986) (saying that the inducements in Section 364 "are considered necessary to overcome the typical hesitancy of creditors to extend credit or loan money to debtors in reorganization"). Tabb argues that the granting of junior liens under Section 364(c) and the priming of prepetition secured creditors provided for under Section 364(d) are necessary because prudent lenders might find that repayment from a restructuring debtor is uncertain. Id. at 124-27.

5. Chemical Bank, now merged with Manufacturers Hanover, is one of the leaders in this industry. One of its managing directors stated that "we approach the market as a new business opportunity and typically have no existing exposure to the debtor." Darla D. Moore, *How to Finance a Debtor in Possession*, 6 Com. Lending Rev. 3, 8 (Winter 1990-91).

6. This is reflected in the requirement that financing be otherwise unavailable. See text accompanying notes 29-31.

lenders have reportedly enjoyed extraordinary rates of return as a result of the reduction in risk caused by the elevated priority and their ability to charge substantial up-front fees.[7] More recently, however, the market has become much more competitive due to low barriers to entry into this sector and the growth in DIP lending opportunities.[8]

The current approach is incomplete because the desirability of the DIP financing depends on more than whether the return to the lender is competitive. In particular, the conventional explanation fails to distinguish DIP financing in which the lender's anticipated returns come from expected increases in the value of the debtor's assets, as opposed to transfers of wealth from prepetition claimants. In fact, the thrust of the conventional story is misplaced because it characterizes Section 364 as providing *inducements* for debt financing. Such inducements are not necessary: nonbankruptcy law permits the issuance of senior or priority debt, which is most of what Section 364 purports to allow under the supervision of the bankruptcy court. While Section 364 does offer a slightly wider variety of financing options compared to what is available to nonbankrupt firms,[9] the section is primarily a *constraint* on the financing decisions of the debtor in possession, designed to replace the prebankruptcy controls provided by debt covenants. Therefore, the theoretical underpinnings of Section 364 should be drawn from the purposes served by these contractual constraints.

This Article presents a theory of DIP financing regulation that distinguishes between desirable and undesirable financing arrangements. Desirable financing is one in which the lender's anticipated return comes from expected payoffs from the profitable use of the funds, while undesirable financing merely effects a transfer from existing debtholders to the DIP lender and the shareholders. The regulation of DIP lending should aim to allow only desirable financing arrangements, as only these promote optimal investment and asset deployment decisions. In particular, it should attempt to ensure that the debtor invests in all opportunities that maximize the value of the firm, but only in such opportunities. Part III explains that well-known conflicts between debtholders and shareholders (financial agency problems) become particularly acute in insolvency and threaten the optimal investment objec-

7. See, for example, George Anders, *Chapter 11 Filings are Boon for Banks that Provide High-Fee Stopgap Loans*, Wall St. J. A3 (Jan. 11, 1991); Henoch, 8 Bankr. Dev. J. at 583 (cited in note 4).

8. Schorer and Curry suggested that in 1990 the market already was becoming quite competitive, and they anticipated that the premium returns enjoyed by DIP financers would soon disappear. Joseph U. Schorer and David S. Curry, *Chapter 11 Lending: An Overview of the Process*, The Secured Lender 10, 12-13 (Mar.-Apr. 1990).

9. See text accompanying notes 26-28.

tive. These conflicts are even more acute in bankruptcy where the automatic stay releases the debt covenant constraints on the decisions of the firm. The remainder of Part III compares three mechanisms for mitigating these agency problems in bankruptcy: (i) altering the fiduciary duties of directors and officers, (ii) reassigning corporate voting rights, and (iii) imposing judicial oversight on managerial discretion.

Part IV models the third option in the context of the regulation of DIP financing under Section 364. It presents a theoretical explanation of the provision and demonstrates how active and informed judicial supervision of DIP financing decisions can correct financial agency conflicts and ensure that debtors in possession invest in all firm value maximizing projects, but only in such projects. Part V offers some suggestions for future expansion of the analysis.

II. The Regulation of DIP Financing Under Section 364

A firm continues to carry on business during its Chapter 11 reorganization proceeding. Bankruptcy law permits the management of the firm to continue to make the business decisions of the firm as the debtor in possession and, in this respect, management enjoys the rights and powers of a trustee under the Bankruptcy Code.[10] During the bankruptcy process, the debtor in possession must finance its continuing operations and investments. The financial distress that the firm experienced before filing is alleviated somewhat in bankruptcy by the suspension of the accrual of interest on all claims that are not oversecured,[11] as well as the automatic stay that freezes the enforcement rights of creditors against the firm's assets and effectively extends the maturity of outstanding debt.[12] Bankruptcy law thereby relieves the firm of its obligations to pay interest and principal as they would otherwise have become due to its creditors. On the other hand, the restrictions on the use of cash collateral may constrain the bankrupt firm's use of its liquid assets.[13] The debtor must obtain either the consent of the secured party or the authorization of the court after showing that the secured party with interest in the cash collateral is adequately protected.[14]

10. 11 U.S.C. § 1107(a) (1988).

11. Id. §§ 502(b)(2), 506(b).

12. Id. § 362(a).

13. Id. § 363. Cash collateral includes "cash, negotiable instruments, documents of title, securities, deposit accounts, or other cash equivalents" (including proceeds from property subject to security interests), existing before or after the bankruptcy petition, in which the estate and an entity other than the estate have an interest. Id. § 363(a).

14. Id. §§ 363(c)(2); 363(e).

If the available internal funding is insufficient, the debtor can presumably issue debt that would rank pari passu with prepetition unsecured creditors. However, the market would greatly discount an unsecured debt instrument issued by a deeply insolvent firm and would value it much like equity. Given the existing value of the firm, the debt would entitle the holder to recover only cents on each dollar of face value, but would allow extensive, though bounded, participation in any future improvement in firm value. Therefore, depending on the degree of insolvency and the firm's prospects, the issuance of debt ranking with prepetition general creditors differs little from the issuance of equity. If a deeply insolvent firm is to engage in debt financing, as opposed to de facto equity financing, the law must allow the firm to grant priority higher than unsecured debt.

In the ordinary course of business, the debtor can issue unsecured debt and incur unsecured credit that enjoy the priority given to administrative expenses, ahead of unsecured claims, unless the bankruptcy court orders otherwise.[15] The courts have interpreted financing in the ordinary course of business narrowly and usually limit it to trade credit.[16] If the debt is issued outside the ordinary course of business, it can enjoy the priority of an administrative expense only if the court authorizes the transaction after notice and hearing.[17] Whether a loan is in the ordinary course of business is often difficult to predict. The risk of error is substantial and the consequences are severe. If the parties assume that the transaction is in the ordinary course of business and do not obtain court authorization, the court will deny the creditor's administrative expense priority if it subsequently determines that the transaction was not in the ordinary course of business.[18]

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15. Id. § 364(a). Section 503 defines administrative expenses to include "the actual, necessary costs and expenses of preserving the estate." Id. § 503(b)(1)(A). Administrative expenses enjoy priority over other unsecured claims under Section 507(a)(1). But see id. § 726(b) (saying that if the court converts a case to Chapter 7 from Chapter 11, the administrative expenses incurred after conversion enjoy priority over claims awarded administrative expense priority while the firm was in Chapter 11).

16. See, for example, *In re Massetti*, 95 Bankr. 360, 363 (E.D. Pa. 1989); *In re Lockwood Enter.*, 52 Bankr. 871, 874 (S.D.N.Y. 1985) (ruling that because the debtor had not customarily borrowed funds for its operating and payroll expenses, a loan for that purpose was not in ordinary course). See, generally, Tabb, 60 S. Cal. L. Rev. at 122 n.79 (cited in note 4).

17. 11 U.S.C. § 364(b). Section 102 defines the hearing requirement as one that is appropriate in the particular circumstances. The requirement can be waived if no party in interest timely requests it or if insufficient time exists for the court to commence a hearing before authorizing performance of the act in question. With respect to the notice requirement, see id. §§ 2002(a)(2), 4001(c).

18. See, for example, *In re Texlon Corp.*, 596 F.2d 1092, 1098-99 (2d Cir. 1979); *In re C.E.N. Inc.*, 86 Bankr. 303, 305-07 (D. Me. 1988); *In re Photo Promotion Associates, Inc.*, 72 Bankr. 606, 612 (S.D.N.Y. 1987). Courts have authorized some debt arrangements retroactively. See, for exam-

Postpetition debt issued to lenders, as opposed to trade credit, usually enjoys higher priority than administrative expenses. The court can authorize superpriority, above that of administrative expenses, if the debtor cannot obtain unsecured debt by granting simple administrative expense priority.[19] Alternatively, the court might authorize the debtor to grant a security interest in unencumbered assets or a junior lien in encumbered assets.[20] The option of securing new debt does not improve the priority position of the DIP lender beyond that of superpriority: either way, it ranks ahead of all general creditors and behind the secured claimants.[21] Nevertheless, benefits may arise from the contingent property rights conveyed by secured lending that are independent of the priority.[22] Section 552 of the Code broadens the debtor in possession's secured financing opportunities. It provides that property acquired during bankruptcy is not subject to any lien or after-acquired property clause in prepetition security agreements, unless it constitutes proceeds from prepetition collateral. Therefore, postpetition property other than proceeds is unencumbered and available as collateral for DIP financing under Section 364(c).[23] In this sense, the firm's financing

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ple, *Wolf v. Nazareth Fair Grounds and Farmer's Market, Inc.*, 280 F.2d 891, 892 (2d Cir. 1960); *In re American Cooler Co.*, 125 F.2d 496, 497 (2d Cir. 1942).

19. 11 U.S.C. § 364(c)(i). This superpriority promotes the rank of the DIP financer to a position ahead of preferred administrative claims such as, for example, the administrative claim of the secured creditor for inadequate protection of its security interest and the claim for liquidation costs if the case is converted to Chapter 7. id. § 726(b). Therefore, the priority given to DIP debt under Section 364(c)(i) and subsequent subsections of Section 364 is valuable in the event that the Chapter 11 case fails and is converted to Chapter 7. If the firm is successfully reorganized in Chapter 11, it must pay in full all administrative expenses under Section 503(b).

20. Id. § 364(c)(2), (3). The debtor in possession is prohibited from transferring any interest in property after the commencement of the case unless the Code or the court authorizes it. Id. § 549.

21. In fact, unlike the superpriority, the value of the collateral limits the priority of a secured claimant. A managing director of Chemical Bank (now merged with Manufacturers Hanover), an active DIP financer, writes that most of its loans have heen unsecured, on a superpriority basis, with a negative pledge on unencumbered assets. See Moore, 6 Com. Lending Rev. at 6 (cited in note 5).

22. See, for example, Alan Schwartz, *Security Interests and Bankruptcy Priorities: A Review of Current Theories*, 10 J. Legal Stud. 1 (1981); Robert E. Scott, *A Relational Theory of Secured Financing*, 86 Colum. L. Rev. 901 (1986); George G. Triantis, *Secured Debt under Conditions of Imperfect Information*, 21 J. Legal Stud. 225 (1992). Some arrangements combine a Section 364(c)(3) junior lien with a Section 364(c)(1) superpriority in case the lien turns out to be inadequate. Baisier and Epstein, 27 Wake Forest L. Rev. at 106 (cited in note 4); Micbael R. Rochelle, *Post-Filing Loans to the Chapter 11 Debtor: Good Money After Bad*, 107 Banking L. J. 344, 347 (1990).

23. See, for example, *Photo Promotion Assoc.*, 53 Bankr. at 762. If the debtor has prepetition claimants with broad security interests in most prepetition assets, the definition of proceeds under Sections 906(1) and 906(2) of the Uniform Commercial Code may catch much of the postpetition assets. In those cases, few unencumbered postpetition assets may remain to secure DIP lenders under Section 364(c). Nevertheless, prepetition secured lenders may provide secured DIP financing in order to protect against any ambiguity concerning the scope of their collateral. Moreover, under

options may be broader in bankruptcy than outside. In general, however, bankruptcy law constrains the financing flexibility of the debtor by imposing judicial oversight.

A controversial form of DIP financing involves crosscollateralization—the collateral secures the prepetition, as well as postpetition debt owed to the DIP lender. This arrangement is not expressly authorized by Section 364 and it conflicts with the bankruptcy principle of equal treatment of prepetition claimants of the same class. Nevertheless, a number of bankruptcy courts have authorized crosscollateralized financing arrangements in which the debtor satisfies a stricter version of the usual concerns of Section 364: that notice and hearing have provided procedural protection to other creditors; that financing is not available on less preferential terms; that the arrangement is necessary to preserve the estate; and that it is in the best interest of all claimants.[24] The Eleventh Circuit, however, recently held that neither the language of Section 364 nor the general equitable power of bankruptcy courts authorizes this departure from the equal treatment of prepetition claims.[25] The discussion that follows will disregard the option of crosscollateralized DIP financing.

Under Section 364(d), the court may authorize the debtor to issue debt secured by an equal or senior lien on encumbered assets. Debtors in possession typically propose this arrangement when substantially all the assets of the debtor are encumbered. The affected prepetition secured creditors usually oppose it. In order to "prime" prepetition liens in this manner, the debtor must show not only that the firm is unable to obtain credit otherwise, but also that the interest of the existing se-

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Section 552(b), the bankruptcy court has the power, after notice and hearing and based on the equities of the case, to sever the liens on proceeds. It can thereby free the collateral for use in Section 364(c)(2) financing. See, for example, *J. Catton Farms v. First Nat'l Bank of Chicago*, 779 F.2d 1242, 1246 (7th Cir. 1985); *In re Lorenz*, 57 Bankr. 734, 736 (N.D. Ill. 1986); *In re Olsen*, 87 Bankr. 148, 153 (D. Colo. 1988).

24. See *In re Vanguard Diversified*, 31 Bankr. 364, 366 (E.D.N.Y. 1983); *In re Roblin Industries, Inc.*, 52 Bankr. 241, 244 (W.D.N.Y. 1985). Contrast *In re Monach Circuit Indus., Inc.*, 41 Bankr. 859, 862 (E.D. Pa. 1984). The requirements are less strict when the collateral is receivables or inventory and the DIP financer held prepetition security interest in the same collateral. Crosscollateralization in that case effectively neutralizes the operation of Section 552 discussed earlier and removes ambiguity as to the extent of the prepetition lender's security interest over, for example, inventory. See also Tabb, 60 S. Cal. L. Rev. at 151 (cited in note 4); Jeff Bohm, *The Legal Justification for the Proper Use of Cross-Collateralization Clauses in Chapter 11 Bankruptcy Cases*, 59 Am. Bankr. L. J. 289, 321-22 (1985); Peter Van Zandt Cobb, Comment, *Initial Financing Restrictions in Chapter XI Bankruptcy Proceedings*, 78 Colum. L. Rev. 1683, 1688 (1978).

25. *In re Saybrook Mfg. Co., Inc.*, 963 F.2d 1490, 1494-95 (11th Cir. 1992). Other circuit courts have not ruled on the legality of crosscollateralization because the issue had been rendered moot by virtue of Section 364(e), which protects arrangements that have been sanctioned by the bankruptcy court. See *In re Adams Apple, Inc.*, 829 F.2d 1484 (9th Cir. 1987); *In re Ellingsen MacLean Oil Co., Inc.*, 834 F.2d 599 (6th Cir. 1987).

cured party is adequately protected.[26] This provision expands the financing opportunities available to the borrower under nonbankruptcy law. State law determines priority among secured creditors by their order of perfection or registration under Article Nine of the Uniform Commercial Code.[27] Once a secured lender has registered its interest in collateral, the borrower cannot grant a security interest of higher priority in the same collateral unless it is a purchase money security interest.[28]

The statutory provisions of Section 364 raise two important issues relating to the financing of debtors during bankruptcy. The first is why bankruptcy law should expand the financing options available to the firm by removing certain constraints existing under state law. In particular, Section 552 of the Bankruptcy Code limits the after-acquired property interest of prepetition secured creditors, and Section 364(d) enables the debtor in possession to prime the liens of secured creditors. These departures from the nonbankruptcy rules of secured transactions have been neither explained nor justified in any rigorous manner.

Second, the Code provides little guidance as to when courts should authorize preferential financing arrangements under Section 364. As noted above, the section requires notice and hearing and, in order to prime prepetition secured creditors, the debtor must show that they are adequately protected. In addition, before authorizing any level of priority under subsections (b) to (d), the courts require that the debtor be unable to obtain financing without the requested priority, either from the DIP lender or a third party.[29] This reflects the misplaced conven-

26. 11 U.S.C. § 364(d). See, for example, *In re Revco D.S., Inc.*, 901 F.2d 1359, 1361-62 (6th Cir. 1990). The Code imposes the requirement of adequate protection in several instances when the interests of secured creditors are threatened: for example, by the automatic stay, the use of collateral by the debtor or, in this case, the granting of equal or senior liens in encumbered collateral. Section 361 provides three nonexhaustive methods for meeting the requirement: periodic cash payments to compensate for decreases in value of the security interest; additional or replacement liens; or such other relief that provides the indubitable equivalent of secured creditor's interest in the collateral. Under the third option, some courts have held in Section 364 cases that adequate protection exists where there is a sufficiently large equity cushion. See, for example, *In re Reading Tube Indus.*, 72 Bankr. 329, 333 (E.D. Pa. 1987); *In re Snowshoe Co., Inc.*, 789 F.2d 1085, 1188-90 (4th Cir. 1986); *In re Dunes Casino Hotel*, 69 Bankr. 784, 795-96 (D.N.J. 1986). The bankruptcy courts should ask whether a debtor would need to use the Section 364(d) provision if it were able to provide adequate protection to the prepetition lienholder. See Tabb, 60 S. Cal. L. Rev. at 164 n.320 (cited in noto 4). Some courts also held that the secured party is adequately protected if it can expect the DIP loan to enhance the value of the collateral. See *In re First South Savings Ass'n*, 820 F.2d 700, 710 (5th Cir. 1987).

27. For a defense of the first-in-time rule, see Alan Schwartz, *A Theory of Loan Priorities*, 18 J. Legal Stud. 209 (1989).

28. Uniform Commercial Code §§ 9-312(3), (4), (5) (1990 Official Text).

29. See, for example, *Reading Tube Indus.*, 72 Bankr. at 332 (saying that a reasonable effort is required); *In re Crouse Group, Inc.*, 71 Bankr. 544 (E.D. Pa. 1987) (saying that a single attempt

tional interpretation of the section as simply a financing inducement, without any sense of the conditions under which such inducement is desirable.[30] It aims to strike a balance between facilitating the financing of debtors in possession, while ensuring that DIP lenders do not enjoy supercompetitive returns. However, the requirement is often ineffective and sometimes misdirected. The debtor's claim that it cannot obtain financing without giving priority is difficult to verify.[31] Moreover, even if the debtor's assertion is true, it may suggest that either little competition exists in the DIP lending market or potential investors believe that the venture to be financed is not profitable.

The other factors that bankruptcy courts apply in exercising their discretion are sporadic and tentative, reflecting judicial ambiguity about the purpose of Section 364. The courts sometimes assert that the proposed financing must be in the best interests of the firm or must enhance the collective interests of its creditors.[32] Perhaps because no coherent theoretical framework exists within which to pursue this objective, the few cases where the courts have used this requirement to deny the priority of postpetition lenders have been instances of clearly improper purposes.[33] In general, the courts defer to the business judgment of the debtor in possession regarding the benefits of the proposed financing to the reorganization of the firm.[34] Indeed, bankruptcy courts are reluctant to jeopardize reorganization attempts by denying financing authorization.[35] The courts' deference increases the risk that authorized financing arrangements will redistribute wealth among stakeholders and impair the value of the firm. In light of this risk, Parts III and IV develop a theoretical basis for more active judicial oversight of DIP financing decisions.

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is not sufficient). But see *Snowshoe Co.*, 789 F.2d at 1088 (saying that the debtor in possession does not have to seek credit from every possible lender).

30. See, for example, *Photo Promotion Ass'n*, 89 Bankr. at 333.

31. In the context of crosscollateralization clauses, Charles Tabb observes that "[t]he proof offered in support of tbis test typically is conclusory, being a mere recital of the magic words by an officer of the debtor in possession or by counsel." Tabb, 60 S. Cal. L. Rev. at 126 n.97 (cited in note 4). See also *In re Adamson Co.*, 29 Bankr. 937, 939 (E.D. Va. 1983).

32. See, for example, *In re Ames Dep't Stores, Inc.*, 115 Bankr. 34, 39-40 (S.D.N.Y. 1990); *In re Gloria Mfg. Corp.*, 65 Bankr. 341, 347 (E.D. Va. 1985).

33. See, for example, *In re EDC Holding Co.*, 676 F.2d 945 (7th Cir. 1982) (concerning a postpetition loan used to pay lender's attorneys); *In re St. Mary Hosp.*, 86 Bankr. 393, 401 (E.D. Pa. 1988) (concerning a postpetition lender who controlled the debtor).

34. See, for example, *In re Chicago, Missouri and Western Ry.*, 90 Bankr. 344, 374 (N.D. Ill. 1988).

35. See Tabb, 60 S. Cal. L. Rev. at 162-68 (cited in note 4).

III. Financial Agency Problems of Insolvent Firms and Bankruptcy Law Responses

In the neoclassical model of the solvent corporation, shareholders hold decisionmaking authority. They delegate this authority to the firm's management. Shareholders control their managers through their rights to elect directors, who appoint and replace officers, and to enforce fiduciary duties owed by directors and officers to the corporation. These control mechanisms are tenuous when shareholding is dispersed: each shareholder has the incentive to freeride on the monitoring of the others[36] and to sell its interest, rather than exercise its governance rights when it learns of adverse changes in the firm.[37] The markets for managers' labor, the firm's products, and the capital that finances the firm's activities discipline managers to a greater extent.[38]

The usual justification for giving shareholders decisionmaking authority is that, as residual claimants in a solvent firm, they enjoy the marginal gains and bear the marginal losses of firm actions.[39] Therefore, they have the most appropriate incentives to ensure the maximization of the value of the firm, which is in the collective interest of all investors.[40] The incentives of shareholders coincide with the collective goal of firm value-maximization if firm decisions involve marginal net payoffs of plus or minus a dollar. However, if the variance of returns is

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36. See, for example, Ronald J. Gilson, *The Case Against Shark Repellant Amendments: Structural Limitations on the Enabling Concept*, 34 Stan. L. Rev. 775, 829 (1982).

37. See generally Albert O. Hirscbman, *Exit, Voice, and Loyalty: Responses to Decline in Firms, Organizations and States* 46 (Harv., 1970).

38. See, for example, Eugene F. Fama, *Agency Problems and the Theory of the Firm*, 88 J. Pol. Econ. 288 (1980). Another well-known, but declining, source of discipline is tbe market for corporate control. See, for example, Henry Manne, *Mergers and the Market for Corporate Control*, 74 J. Pol. Econ. 110 (1965); Michael C. Jensen and Richard Ruback, *The Market for Corporate Control: The Scientific Evidence*, 11 J. Fin. Econ. 5 (1983).

39. Professor Oliver Williamson has proposed another justification. Debt claims enjoy priority over equity interests and leave shareholders with the residue. In addition, debtholders bave the right to enforce their claims at maturity or on default, whichever comes first. They can choose to collect or renegotiate, as they see fit. In contrast, the equity contract does not come up for periodic renewal. This allows the firm to exploit its shareholders, unless corporate law gives them governance powers such as voting and fiduciary rights. Oliver Williamson, *The Economic Institutions of Capitalism* 304-06 (Free Press, 1985).

40. See, for example, Frank H. Easterbrook and Daniel R. Fischel, *The Economic Structure of Corporate Law* 63-72 (Harv., 1991).

> The shareholders receive most of the marginal gains and incur most of the marginal costs. They therefore have the right incentives to exercise discretion. And although the collective choice problem prevents dispersed shareholders from making the decisions day by day, managers' knowledge that they are being monitored by those who have the right incentives, and the further knowledge that the claims could be aggregated and votes exercised at any time, tends to cause managers to act in shareholders' interest in order to advance their own careers and to avoid being ousted.

Id. at 68.

greater and produces a risk of insolvency, the limited liability of shareholders means that they share losses with the firm's debtholders.[41] Therefore, to the extent that they can capture the upside potential, shareholders will induce management to engage in risky projects that may not have positive net present values.[42]

The prospect of insolvency raises another agency problem. Since debtholders enjoy priority over shareholders, the shareholders cannot participate in profits made when the firm is insolvent. Therefore, unless a project yields sufficient return to the shareholders in the solvent states of the world, they will not finance it by investing new equity.[43] This problem may be stated in broader terms: to the extent that they are unable to participate in profits because of the prospect of insolvency, shareholders may lack the incentive not only to invest new equity but also to induce their agents, the management, to exploit firm value maximizing projects even by alternative financing means, such as debt.

Debt covenants negotiated between debtholders and borrowers are a well-known mechanism for controlling financial agency problems.[44] A violation of a covenant is typically an event of default that triggers the lender's rights to accelerate the maturity of its claim and enforce it against the assets of the borrower. These rights are the governance instruments of debtholders that allow them to influence the firm's decisions. Backed by the threat of acceleration and enforcement, debt covenants reduce the decision space of shareholders and their managers by restricting or mandating specific types of actions. However, the two types of incentives described above lead to investment decisions that are sub-optimal in opposite directions. The risk-taking incentive causes overinvestment: investment in risky projects with negative net present expected value (NPV). The second problem leads to underinvestment: the failure to invest in low-risk positive NPV projects. Therefore, unless investors can observe the range of projects that will be available to the

41. In effect, this gives shareholders a valuable call option on the assets of the firm, whose value varies with the riskiness of the assets. Fisher Black and Myron Scholes, *The Pricing of Options and Corporate Liabilities*, 81 J. Pol. Econ. 637 (1973).

42. Michael C. Jensen and William H. Meckling, *Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure*, 3 J. Fin. Econ. 305, 333-43 (1976).

43. Stewart C. Myers, *Determinants of Corporate Borrowing*, 5 J. Fin. Econ. 147, 149-54 (1977). The underinvestment problem is controlled if the firm can call or renegotiate its outstanding debt obligations. Id.

44. For instance, the collateralization of assets impedes the substitution of high-risk projects for low-risk projects. Clifford W. Smith, Jr. and Jerold B. Warner, *On Financial Contracting: An Analysis of Bond Covenants*, 7 J. Fin. Econ. 117, 128 (1979). Constraints on distributions to shareholders increases the availability of internal funding for projects that the firm might otherwise forego. See, for example, Avner Kalay, *Stockholder-Bondholder Conflict and Dividend Constraints*, 10 J. Fin. Econ. 211 (1982). See generally Smith and Warner, 7 J. Fin. Econ. at 117.

firm during the term of the debt, a covenant designed to mitigate the overinvestment problem may well cause underinvestment, and vice versa.[45]

Financial distress intensifies the incentives that underlie these agency problems so that investment decisions have less and less to do with net present values of available projects. In particular, the value of the limited liability cap on shareholder losses increases as the firm approaches insolvency, leading to extreme preference for risky investments. In addition, as the probability of insolvency rises, and later as the degree of insolvency increases, the shareholders are excluded from participating in an increasingly large fixed portion of the upside gain. As a result, they are interested only in projects that yield extremely large payoffs in some states of the world, irrespective of the expected values of projects either adopted or passed over. Therefore, both overinvestment and underinvestment problems become increasingly severe. At the same time, the discipline imposed by contractual constraints and market reputational norms becomes weaker as management and shareholders perceive their situation to be increasingly an end game. By the time the firm becomes insolvent, it is usually in default under a number of debt instruments. The holders of these instruments have the right to accelerate and enforce their claims against the firm's assets. This prospect threatens the survival of the debtor's business. However, as long as the borrower remains in control of its assets, it has little more to lose by additional violations of contractual covenants. On the other hand, the exercise of enforcement rights is discretionary and the borrower may decide to cure its default and comply with its covenants in order to encourage the debtholder to waive or postpone its rights.

The initiation of bankruptcy proceedings automatically stays creditor enforcement rights and thereby removes the principal governance lever of the debtholders. As a consequence, restrictive covenants in the firm's prepetition debt cease to have any effect on the decisions of the firm. If the firm is preserved as a going concern, then at the conclusion of the case, the creditors exchange their claims for cash, new debt claims and equity interests in the reorganized debtor. By restoring solvency, the reorganization of the firm mitigates the incentives for over- and underinvestment and the covenants in the new debt instruments assume the role of constraining the remaining financial agency problems.

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45. The relationship between the problems of under- and over-investment has been explored recently. See Elazar Berkovitch and E. Han Kim, *Financial Contracting and Leverage Induced Over- and Under-Investment Incentives*, 45 J. Fin. Econ. 765 (1990); Robert Gertner and David Scharfstein, *A Theory of Workouts and the Effects of Reorganization Law*, 46 J. Fin. Econ. 1189, 1210 (1991).

However, the bankruptcy reorganization process takes time and agency problems must be controlled while creditor enforcement rights are in abeyance. Bankruptcy law might impose a substitute sanction requiring the debtor to continue to comply with the covenants in its outstanding debt, despite its inability to meet its payment obligations. However, the covenants in a bankrupt's outstanding debt, particularly financial ratio tests, usually contemplate a solvent debtor and are inapt under conditions of insolvency. The alternative of requiring the parties to renegotiate limits to the borrower's decisionmaking authority is highly problematic due to the freezing of the exit option of creditors.

Given the absence of contractual and market constraints on the firm in bankruptcy and given the powerful incentives discussed above to serve shareholder interests at the expense of fixed claimants, bankruptcy law must provide a substitute mechanism for avoiding the collective welfare losses that result from the intense financial agency problems of insolvent entities. In this regard, three approaches are available that vary in their reliance on creditor and judicial initiative: (i) altering managerial fiduciary duties, (ii) changing voting rights in insolvent firms, and (iii) imposing legislative and judicial constraints on managerial discretion, such as the regulation of financing decisions under Section 364.[46] Each alternative is present to some extent under bankruptcy law. The remainder of this Part reviews briefly the extent to which managers of firms in bankruptcy are legally obligated to be the agents of the firm's shareholders and, more generally, whether in practice those managers have consistent incentives to be perfect agents of their principals.

Most courts recognize that the conflict between fixed and residual claimholders intensifies when the firm is insolvent and they permit creditors to sue directors and officers for breach of fiduciary duties.[47] Bankruptcy courts are no exception and, indeed, the Code provides that the debtor in possession is not simply a continuation of prebankruptcy management, but rather it assumes the rights, powers and duties of a bankruptcy trustee.[48] Some authorities state that insolvent debtors owe

46. Professors LoPucki and Whitford suggest an interesting alternative mechanism, the preemptive cramdown. This rule would terminate early in the proceedings any class of interests that is so far under water that no reasonable probability exists of any distribution to its members under the absolute priority rule. Lynn M. LoPucki and William C. Whitford, *Preemptive Cram Down*, 65 Am. Bankr. L. J. 625 (1991).

47. See, for example, *Credit Lyonnais Bank v. Pathe Communications Corp.*, C.A. No. 12150, mem. op. at 83 n.55 (Del. Ch. Dec. 30, 1991); *Geyer v. Ingersoll Publications*, C.A. No. 12406 (Del. Ch. June 18, 1992).

48. 11 U.S.C. § 1107. See, for example, *In re UNR Indus., Inc.*, 30 Bankr. 609, 612 (N.D. Ill. 1983).

fiduciary duties only to creditors.[49] However, most courts hold that both creditors and shareholders are beneficiaries of such duties.[50] Given the conflicting interests of the beneficiaries, the courts have adopted various tests to determine whether the debtor in possession satisfied its dual fiduciary obligations: whether the debtor in possession made the decisions in a prudent manner or, alternatively, whether it could have reasonably expected its actions to preserve the estate or to maximize the value of the firm.[51]

As a mechanism to address financial agency problems, the scheme of judicially enforced dual fiduciary duties is impaired by the existence of private information in the hands of management[52] and by limits on judicial competence to second-guess business decisions. Given these shortcomings, Douglas Baird and Thomas Jackson argue that courts should address the incentive problems by changing the corporate governance structure in bankruptcy.[53] Returning to the rationale for the governance structure of solvent firms,[54] they argue that the decision-making authority in a debtor should continue to lie with the residual owner of the firm, which they define as the investor who derives the marginal benefit and bears the marginal loss from the firm's decisions. Although shareholders benefit from profits that make the firm solvent, they are not the residual owners of an insolvent firm under Baird and Jackson's definition. In most cases, the unsecured claimants are the class affected by the firm's gain or loss at the margin.[55]

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49. See, for example, *FDIC v. Sea Pines Co.*, 692 F.2d 973, 976-77 (4th Cir. 1982); *In re Baldwin-United Corp.*, 43 Bankr. 443, 459-60 (S.D. Ohio 1984); Douglas G. Baird, *Fraudulent Conveyances, Agency Costs and Levereged Buyouts*, 20 J. Legal Stud. 1, 12 n.18 (1991).

50. See, for example, *Commodity Futures Trading Comm'n v. Weintraub*, 471 U.S. 343, 355-56 (1985); *In re Hughes*, 704 F.2d 820, 822 (5th Cir. 1983); *In re Cochise College Park, Inc.*, 703 F.2d 1339, 1357 (9th Cir. 1983); *Ford Motor Credit Co. v. Weaver*, 680 F.2d 451, 462 n.8 (6th Cir. 1982); Raymond T. Nimmer and Richard B. Feinberg, *Chapter 11 Business Governance: Fiduciary Duties, Business Judgment, Trustees and Exclusivity*, 6 Bankr. Dev. J. 1, 29-37 (1989).

51. See, for example, *In re Four Score Broadcasting, Inc.*, 77 Bankr. 404, 407-08 (W.D. N.Y. 1987).

52. The obligation of the debtor in possession, in the place of the trustee, to provide any information required by the court is difficult to enforce. 11 U.S.C. §§ 1106(a), 1107(a). These difficulties are likely to persist even if the court goes a step further and appoints an examiner. Id. § 1104(b).

53. Douglas G. Baird and Thomas H. Jackson, *Bargaining After the Fall and the Contours of the Absolute Priority Rule*, 55 U. Chi. L. Rev. 738, 761-66 (1988); Thomas H. Jackson, *The Logic and Limits of Bankruptcy Law* 167-69 (Cambridge, 1986). See also Douglas G. Baird, *Fraudulent Conveyances, Agency Costs, and Leveraged Buyouts*, 20 J. Legal Stud. 1, 21 (1991):

> The business judgment rule and much else in corporate law embrace the general principle that courts are much better at determining who a decision maker should be than at making a particular business decision.

54. See note 40.

55. Professor Jackson has stated:

Bankruptcy law does not change the fundamental governance structure to shift the locus of decisionmaking authority to the de facto residual owners. Shareholders still may vote to replace management in bankruptcy, except where the court finds either clear abuse or that the exercise of shareholder voting rights would jeopardize successful reorganization.[56] However, creditors can neutralize the governance rights of shareholders in several ways. They can ask the court to convert the case to Chapter 7.[57] Alternatively, the creditors may move to limit the authority of the debtor in possession.[58] They may also move for the appointment of a trustee to replace the debtor in possession or of an examiner to monitor management.[59] The court can appoint a trustee either for cause, such as fraud, dishonesty, incompetence or gross mismanagement, or if such appointment is in the collective interest of all holders of claims and interests in the debtor. The replacement of a debtor in possession by a trustee, particularly on the latter of these grounds, is rare.[60]

The policy of shifting decisionmaking authority from shareholders to the class of creditors who are the residual owners (at the margin) of the firm in bankruptcy raises several concerns. First, the identification of the residual owner in a multi-layered hierarchical capital structure depends on a costly and often ambiguous valuation of the firm.[61] Sec-

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> [T]he only way that [a financing] decision can be made without bias is for it to be made by the group that will reap the benefits of a successful decision and pay the costs of an unsuccessful decision. That group consists of residual claimants, who in the case of an insolvent company are almost always the unsecured creditors. It is they that should determine whether a loan is worthwhile and whether its terms are the best they can get.

Jackson, *Logic and Limits* at 168 (cited in note 53). See also Baird and Jackson, 55 U. Chi. L. Rev. at 765-66 (cited in note 53); David Arthur Skeel, Jr., *The Nature and Effect of Corporate Voting in Chapter 11 Reorganization Cases*, 78 Va. L. Rev. 461 (1992); id. at 500-01 (discussing the authorization of sales of all or most of firm assets), 510-12 (discussing directoral elections).

56. With respect to the right of shareholders to hold meetings to elect new directors, compare *In re Johns-Manville Corp.*, 801 F.2d 60, 64-69 (2d Cir. 1986) (finding an instance of "clear abuse") with *In re Lionel Corp.*, 30 Bankr. 327, 330 (S.D.N.Y. 1983) (upholding shareholder voting rights). Bankruptcy courts may also choose to prevent the directors from replacing managers. See, for example, *In re Gaslight Club, Inc.*, 782 F.2d 767 (7th Cir. 1986). See generally Lynn M. LoPucki and William C. Whitford, *Corporate Governance and the Bankruptcy Reorganization of Large, Publicly Held Companies*, 141 U. Pa. L. Rev. 669, 694-99 (1993).

57. 11 U.S.C. § 1112(b). The court may convert the case to Chapter 7 if it is in the best interest of the creditors and the estate, and for cause, including continuing loss to and diminution of the estate and absence of a reasonable likelihood of rehabilitation. Id. § 1112(b)(i).

58. Id. §§ 1107, 1108.

59. Id. § 1104.

60. In a study of the 43 largest Chapter 11 cases of publicly held companies filed after October 1, 1979 and resolved by March 15, 1988, Professors LoPucki and Whitford found that the court appointed a trustee or quasi-trustee to replace a debtor in possession in only 12% of their sample. LoPucki and Whitford, 141 U. Pa. L. Rev. at 699-700 (cited in note 56).

61. Douglas G. Baird, *The Uneasy Case for Corporate Reorganization*, 15 J. Legal Stud. 127, 136-37 (1986); Baird and Jackson, 55 U. Chi. L. Rev. at 763-66 (cited in note 53).

ond, even if the court can determine the firm's value, that figure will fluctuate during bankruptcy, particularly in the lengthy reorganizations of publicly held companies. Therefore, the loyalties of management under a residual owner rule may shift several times among different classes of creditors as the value of the firm fluctuates.[62] Third, bankruptcy courts may find it difficult to mandate shifts in the loyalties of management who are accustomed to serving shareholder interests.[63] Yet the alternative of replacing management loyal to a prior class of residual owners may cause disruptions in operations and loss of firm specific expertise.

The most enduring problem, however, is that even if successful, the shift in decisionmaking authority to the residual owners does not eliminate financial agency problems. Unsecured creditors are residual owners only at the margin. Their participation in the company's fortunes is bounded on both sides: they share gains with shareholders and losses with the more senior creditors. Therefore, conflicts of interest between the residual owner who holds decisionmaking authority in bankruptcy and these other groups will persist. In particular, the more senior creditors will not have the protection of covenants and the accompanying rights to accelerate and enforce. Therefore, bankruptcy rules that replace the controls of covenants will still have a role to play.

Several other factors affect managerial incentives. In particular, managers are concerned about the risk of losing their jobs and about their reputation in the market for managerial services. As a result, managers seek to avoid liquidation of the firm since it means certain loss of their jobs, regardless of the value of the firm.[64] Therefore, their behavior should depend on the probability of liquidation, which is a function of whether the expected value of the firm is greater or less than its liquidated value. If liquidation is a likely result in bankruptcy, management's interests should converge with those of shareholders in their preference for risky projects. Conversely, if liquidation is less likely because the firm has a substantial going concern value, managers should

62. Professor Skeel proposes that the class of residual owners be defined broadly (for example, all unsecured creditors) to avoid the problems of ambiguous and fluctuating valuations. Skeel, 78 Va. L. Rev. at 500-01 (cited in note 55).

63. Compare id. at 509 (despite the shift in fiduciary duties at insolvency, "directors will continue to represent shareholder interests"). But see John C. Coffee, Jr., *Unstable Coalitions: Corporate Governance As a Multi-Player Game*, 78 Georgetown L. J. 1495, 1539-42 (1990) (suggesting that managers shift loyalties among shareholders and creditors according to their self-interest).

64. For a controversial version of this argument, see Michael Bradley and Michael Rosenzweig, *The Untenable Case for Chapter 11*, 101 Yale L. J. 1043, 1076-77 (1992) (saying that the principal beneficiaries of Chapter 11 are corporate managers). For a reply, see Lynn M. LoPucki, *Strange Visions in a Strange World: A Reply to Professors Bradley and Rosenzweig*, 91 Mich. L. Rev. 79, 94-97 (1992).

be more risk averse and should act more in line with creditor interests.[65]

However, managers cannot avoid losing their jobs simply by promoting reorganization and avoiding liquidation. Recent empirical studies of public companies in Chapter 11 reveal a high turnover rate for management,[66] particularly CEOs, who presided over the decline of the firm.[67] Therefore, both prebankruptcy and replacement managers are likely to be sensitive to the extent to which creditors participate in replacement decisions. Debtholders are not shut out of the governance process in bankruptcy. They enjoy a fair degree of leverage by virtue of their ability to invoke the court's review of the debtor's decisions and their status as the likely postreorganization owners of the firm. In fact, lenders appear to have significant influence in replacement decisions,[68] despite the concerns they should have about the consequent risk of future subordination of their claims or lender liability.[69] On the other hand, given the high probability of replacement, managers are also concerned about their reputation, which determines their ability to find new positions elsewhere. Unless a manager's career niche involves relatively short-term appointments to liquidate or turnaround firms in financial distress, she may seek to promote a reputation of being faithful to shareholder interests.

In the end, the behavior of management of insolvent debtors is difficult to predict. While financial economists assume that managers continue to act as agents of shareholders, Lynn LoPucki and William Whitford found a "diversity of management orientations" in their sample of public companies in Chapter 11.[70] Their empirical study characterized more managers as representing the interests of creditors than of shareholders. Moreover, in a significant number of cases, the authors

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65. See Susan Rose-Ackerman, *Risk Taking and Ruin: Bankruptcy and Investment Choice*, 20 J. Legal Stud. 277, 288-97 (1991).

66. Professor Stuart Gilson examined a sample of 111 publicly traded firms that either filed for bankruptcy under Chapter 11 or privately restructured their debt between 1979 and 1985. He found that over half of the CEOs and directors of the firms lost their jobs during the restructuring period. Stuart C. Gilson, *Bankruptcy, Boards, Banks and Blockholders*, 27 J. Fin. Econ. 355, 369-71 (1990). Professors LoPucki and Whitford found that the CEO was replaced at least once in over 90% of the cases in their sample during a period starting 18 months before filing and ending six months after confirmation. LoPucki and Whitford, 141 U. Pa. L. Rev. at 723 (cited in note 56).

67. LoPucki and Whitford, 141 U. Pa. L. Rev. at 729-32.

68. See Gilson, 27 J. Fin. Econ. at 373; Stuart C. Gilson, *Management Turnover and Financial Distress*, 25 J. Fin. Econ. 241, 249 (1989) (saying that bank lenders frequently induce high-level management changes); LoPucki and Whitford, 141 U. Pa. L. Rev. at 737 (saying that creditors participated in 45% of the decisions to replace CEOs in their sample).

69. See, for example, *State Nat'l Bank v. Farah Mfg. Co.*, 678 S.W.2d 661 (Tex. Ct. App. 1984). For a criticism of the decision, see Daniel R. Fischel, *The Economics of Lender Liability*, 99 Yale L. J. 131 (1989).

70. LoPucki and Whitford, 141 U. Pa. L. Rev. at 742-47.

believed that the managers were reluctant to choose sides and decided to pursue independent objectives of preserving the company or maximizing the value of the estate. LoPucki and Whitford's results suggest that the agency problems in bankruptcy vary from case to case depending on managerial orientation.

There remains a concern that managers often continue to be good agents of their shareholders or otherwise fail to pursue the collective, firm value maximizing objective. In response, the Bankruptcy Code provides that judges oversee the decisions of debtors in possession. For instance, parties in interest have the broad right to raise and be heard on any issue in the bankruptcy case.[71] In addition, the Code provides those parties with express rights to challenge specific decisions of the firm that are not in the ordinary course of business.[72] In fact, the firm may implement some decisions only with the authorization of the court after hearing.[73] The regulation of DIP financing under Section 364 is an example of judicial supervision of a specific subset of managerial decisions. Requirements of notice and the provision for creditor committees, which are funded out of the assets of the estate, facilitate the monitoring needed to make the rights to be heard meaningful. Yet, the advantage in information and expertise enjoyed by the debtor's management tends to reinforce the deference of the courts to the managers' business judgment. Indeed, given this asymmetry, the court's deference may be desirable. Nevertheless, the most significant obstacle to efficient judicial oversight remains the absence of a coherent theory for Section 364.

IV. A Model of Judicial Oversight of Financing Decisions Under Section 364

In light of the agency problems that afflict leveraged firms, debt contracts often include covenants that restrict the financing decisions of the borrower. For instance, they may employ a debt-asset ration test to constrain the amount of debt the borrower may issue and a negative pledge clause to limit the circumstances in which the borrower may give future debt higher priority through security interests. For reasons noted in Part III, debt covenants are ineffective in bankruptcy. Firms often file for bankruptcy in order to gain release from restrictions such as the

71. 11 U.S.C. § 1109.

72. See, for example, id. § 363(b)(1) (regarding the use, sale or lease of property other than in the ordinary course of business); id. § 363(b)(2) (regarding the use of cash collateral); id. § 364 (b), (c), (d); id. § 365 (regarding the rejection of executory contracts).

73. Id.

negative pledge clause.[74] Since DIP financing decisions are often made early in bankruptcy proceedings,[75] the following discussion assumes that creditors have not yet captured the loyalties of management and that managers of insolvent firms continue to act as agents of shareholders. It also assumes that prepetition creditors have no governance rights in bankruptcy and that agency problems cannot be addressed through the restructuring of claims or other forms of recontracting.[76]

Section 364 substitutes judicial oversight for the prebankruptcy contractual constraints.[77] To this end, bankruptcy courts should be attentive to the relationship between financing patterns and investment incentives. They should understand the underinvestment and overinvestment incentives of an insolvent firm and the impact that decisions to grant priority to postpetition lenders have on these incentives. On this basis, the courts should be able to distinguish between financing arrangements proposed by the debtor in possession that enhance the value of the firm and those that redistribute wealth among classes of investors and contribute to agency costs. The ability to issue senior or secured debt can mitigate the incentive to underinvest in profitable projects.[78] This is the principal reason for judges to authorize DIP financing that enjoys administrative expense priority, superpriority, or is secured under Section 364(c) or (d). On the other hand, the issuance of debt of higher priority (senior or secured debt) may intensify management's incentive to take risks by providing funds for risk-increasing investments at lower cost to the firm.[79] Overinvestment may involve the

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74. See, for example, *Kham & Nate's Shoes No. 2, Inc. v. First Bank of Whiting*, 908 F.2d 1351 (7th Cir. 1990). In fact, lenders who condition their extension of new credit on the bankruptcy filing often push debtors in financial distress into bankruptcy. See Karen Wruck, *Financial Distress, Reorganization and Organizational Efficiency*, 27 J. Fin. Econ. 419, 436 (1990).

75. In many cases, DIP financing negotiations occur before the Chapter 11 filing and the bankruptcy court authorizes the arrangement within a couple of weeks after filing. See, for example, note 2; Marck C. Rohman and Michael A. Policano, *Financing Chapter 11 Companies in the 1990s*, 3 J. App. Corp. Fin. 96, 99 (1990).

76. See note 43 and accompanying text. Outside bankruptcy, shareholders have the incentive to renegotiate their outstanding debt to correct inefficient disincentives to invest. See Varouj A. Aivazian and Jeffrey L. Callen, *Corporate Leverage and Growth: The Game Theoretic Issues*, 8 J. Fin. Econ. 379 (1980); Yaacov X. Bergman and Jeffrey L. Callen, *Opportunistic Underinvestment in Debt Renegotiation and Capital Structure*, 29 J. Fin. Econ. 137 (1991).

77. In contrast, postpetition lenders can negotiate their own covenants which are effective because their enforcement rights are typically not subject to the automatic stay in Section 362. In fact, under Section 364, the courts have authorized a variety of forms of debt: lines of credit, term loans, letters of credit, and commercial paper. The form of DIP loan documentation looks much like its nonbankruptcy counterpart and may include conditions, representations and warranties, covenants and default provisions.

78. See Gertner and Scharfstein, 46 J. Fin. Econ. at 1197-98 (cited in note 45); Rene M. Stulz and Herb Johnson, *An Analysis of Secured Debt*, 14 J. Fin. Econ. 501, 515-18 (1985).

79. With respect to the double-edged effect of the issuance of senior debt, see Berkovitch and Kim, 45 J. Fin. Econ. at 765 (cited in note 45).

undertaking of new, high-risk projects; but the problem is more often manifest in expenditures aimed at avoiding liquidation of the firm. In cases where overinvestment is a concern, DIP priority financing contributes to the agency problem and courts should constrain it. Bankruptcy courts should be sensitive to this balance in deciding whether the financing proposed by the debtor in possession is efficient in the sense of maximizing the value of the firm. The optimal arrangement depends on whether and to what degree an under- or overinvestment problem exists. The solution to this problem is a function of the incentives to invest which, in turn, may be evaluated by referring to factors that the courts have largely ignored up to now: the degree of insolvency, the riskiness of the projects available to the firm, whether the postpetition lender is also a prepetition lender, and whether the firm proposes to grant the lender elevated priority or a security interest. The following discussion illustrates the significance of these factors.[80]

The riskiness of the projects available to the firm affects the shareholders' incentive to exploit the firm's opportunities. If the financial condition of the firm is given, the tendency of an insolvent firm to invest in new projects varies with the range of possible returns. The wider the range, the more likely that the shareholders will enjoy profits in some state of the world, while shifting the risk of losses in other states onto existing debtholders. Therefore, they may invest even when the cost of the project exceeds the expected payoff. Conversely, the narrower the range of possible payoffs, the more likely the firm is to forego even profitable investments because the shareholders may not participate in the profits in any state of the world. They are uninterested in motivating their agents, the managers, to exploit such opportunities.[81]

In the preceding analysis, the financial condition of the firm is constant and the spread of possible project returns is the independent variable. However, the financial condition and, in particular, the degree to which the firm is insolvent are crucial variables. The greater the degree of insolvency (that is, the difference between liabilities and assets), the more severe is the underinvestment problem because the debt overhang is larger. In other words, more unsatisfied claims exist to soak up the profits from new projects. Conversely, if the insolvency is slight, the firm has less debt overhang and the shareholders are more likely to capture some of the profits of any investment, while sharing the downside risk with the debtholders.

80. For a more rigorous demonstration, see the Mathematical Appendix.

81. Managers may have selfish incentives to pursue these projects even though their shareholders may he indifferent.

The following example illustrates the importance of the degree of insolvency. Consider two insolvent firms, each of which has outstanding unsecured debt of $100. Each has filed petitions in bankruptcy and the enforcement rights of prepetition creditors have been stayed. Firm A has assets worth $60, while Firm B is less insolvent and has assets worth $80. Each firm has a nontransferrable opportunity to invest $100 in a project[82] that has a fifty percent chance of yielding a payoff of $30 (State 1) and a fifty percent chance of yielding a payoff of amount $Q (State 2), and each firm discovers which state applies after the decision to invest.[83] The payoffs of the project are such that the firm will continue to be insolvent in State 1, but will achieve solvency in State 2.[84] After each firm decides whether to invest and receives the project payoffs, the firm is liquidated and the proceeds from liquidation are distributed to the claimants according to their priority.[85]

Each firm would maximize its value by investing in the project if, but only if, the project yields an expected payoff that exceeds the investment of $100: that is, if and only if Q is greater than $170. Assuming that shareholders are unable to renegotiate their outstanding debt,[86] the shareholders of Firm A would rarely invest $100 of new equity to finance such profitable projects. Shareholders receive nothing in State 1 because the firm is insolvent. In State 2, they receive the difference between total assets and liabilities. For Firm A, this is $60 + Q - 100$, or $Q - 40$. The shareholder's expected payoff is $0.5(Q - 40)$. The equity investment is justified only when this exceeds the investment of $100; that is, when $Q > 240$. For Firm B, the corresponding minimum value is $210. If Q is less than these values, shareholders will not finance the opportunity. As shown below, however, the shareholders might induce the firm to exploit the opportunity by issuing new debt, but only if a prospect of profit exists for them in some state of the world.

Suppose that each firm seeks to finance the project by borrowing $100. The shareholders and the new DIP lender will reach an agree-

82. The idea of a project should be thought of broadly to encompass the financing of the continuing operations of the debtor, such as the payment of suppliers, public utilities, and employees.

83. The probabilities and contingent payoffs are known by all investors, but are not verifiable in court.

84. That is, Q is assumed to be greater than 140 for Firm A and greater than 120 for Firm B. The Appendix explains this simplifying assumption; the assumption does not impair the generality of the results.

85. DIP financing is a crucial component in Chapter 11 reorganizations. However, the discussion assumes that the parties cannot renegotiate prepetition debt and that the firm is liquidated in order to abstract from the restructuring process and to concentrate on the financing and investment decisions. Nevertheless, the interaction of the reorganization of claims and DIP financing raises interesting issues for future research. See Part V.

86. See note 85.

ment to finance the project if they can expect to enjoy a positive net payoff from the venture. The rate of interest determines the manner in which they will share this payoff and it is not of concern here.[87] For simplicity, I assume that the postpetition lender agrees to subordinate its claim for interest to the firm's debt.[88] This assumption permits us to view the shareholders and the new lender as a coalition for the purpose of analysis and to postulate that they will reach an agreement to finance the project if the expected payoff to the coalition exceeds the investment of $100.

The lender to each firm contributes $100. In return, each firm gives the lender a debt claim for that amount and a participation in the profit of the coalition that is implicit in the interest rate, as suggested above. In State 1, the lender receives payment pro rata out of the proceeds from the liquidation of the insolvent firm. Since the shareholders receive nothing in this state, the coalition's payoff is the lender's payoff. In State 2, the coalition receives the residual difference between the proceeds from liquidation of the now solvent firm and the face value of the prepetition debt, which is $100 for each firm.

The coalition in Firm A receives half of $90, or $45, in State 1 and the residual amount of $Q - 40 in State 2. Since the two states are equally likely, the coalition's expected payoff is the average: $0.5(Q + 5)$. Therefore, the coalition will reach an agreement to finance the opportunity only if this expected payoff exceeds the investment of $100: that is, if $Q > 195$. Since the firm value maximizing rule is to invest whenever $Q > 170$, Firm A will forego a profitable opportunity if Q lies between 170 and 195. As suggested earlier, this tendency to underinvest would be exacerbated if the project had less risk—if the payoff in State 1 were higher than 30—and, conversely, would be mitigated if the project were more risky.

The coalition in Firm B is paid a pro rata amount in State 1 of $55, and the residual amount of $Q - 20 in State 2. Therefore, its expected payoff is $0.5(Q + 35)$. This expected payoff exceeds the necessary in-

87. The idea of a shareholder and lender coalition comes from Jeremy I. Bulow and John B. Shoven, *The Bankruptcy Decision*, 9 Bell J. Econ. 437 (1978). In their model, the bank invests new funds to prevent default on outstanding bonds and liquidation of the debtor. In return, equityholders agree to share with the bank the gains from the continuation of the company by giving the bank warrants, convertibility privilege or a higher interest rate. Several authors have made important subsequent contributions. Michelle J. White, *Public Policy Toward Bankruptcy: Me-First and Other Priority Rules*, 11 Bell J. Econ. 550 (1980); Michelle J. White, *Bankruptcy Costs and the New Bankruptcy Code*, 38 J. Fin. Econ. 477 (1983); Gertner and Scharfstein, 46 J. Fin. Econ. at 1189 (cited in note 45).

88. This is a common simplifying assumption in financial models. See, for example, Bulow and Shoven, 9 Bell J. Econ. at 445 (cited in note 87). In fact, bankruptcy law does not distinguish between the rank of principal and interest obligations on the same debt.

vestment of \$100 if $Q > 165$. No underinvestment problem exists since Firm B will always choose to invest when it would maximize firm value (that is, $Q > 170$). However, Firm B will also invest in unprofitable projects if Q lies between 165 and 170. This tendency to overinvest would be aggravated if the project were more risky—that is, if the payoff in State 1 were less than 30—and, conversely, would be mitigated if the project were less risky.

Firm A could reduce or eliminate its underinvestment problem (it only invests if $Q > 195$) if it issued priority debt to its new lender. The lender would receive a higher payoff in State 1; that payoff would be the lesser of the value of the firm and \$100, the amount of the lender's claim. Therefore, the lender would require a smaller payoff in State 2. As a result, it would agree to finance the investment for a lower value of Q than 195. This effect is illustrated below. In contrast, however, Firm B need not issue priority debt to exploit profitable opportunities. In fact, priority debt would exacerbate the existing overinvestment problem, particularly if the projects available to the firm are known to involve high risk.

Some preliminary implications may be drawn for the exercise of judicial supervision under Section 364. The objective of the regulation of DIP lending arrangements should be to promote investment incentives that are as close to optimal as possible. The optimal investment condition requires shareholders and DIP lenders to agree to finance any given project if and only if it yields an expected payoff that exceeds the required investment. The foregoing analysis suggests that the courts should be particularly watchful of the issuance of priority debt outside the ordinary course of business when the degree of insolvency is small and the projects available to the firm are risky. Those are the scenarios where underinvestment is less likely and, in fact, overinvestment may be the problem.

Before considering the effect of priority debt, an examination of the relevance of the identity of the new DIP lender to Firm A is helpful. In particular, suppose that, instead of being an outsider, the lender is a prepetition creditor who holds an existing claim of \$20 out of the total prepetition indebtedness of \$100. If Firm A were liquidated without investing in the project, the lender would receive one-fifth of the \$60 worth of assets, or \$12. If the lender and shareholders strike a deal to finance the project, the face value of the lender's claim is now \$120 out of the total indebtedness of \$200. Therefore, in State 1, it receives a payoff of 0.6(90) or \$54. In State 2, the coalition receives the residual difference between the total value of assets ($60 + Q$) and the aggregate amount of all other claims (\$80)—that is, \$Q - 20. Its expected payoff is therefore $0.5(Q + 34)$. For the coalition to invest, this expected payoff must exceed the sum of the amount invested ($100) and the lender's payoff if it did not invest ($12). This occurs if Q exceeds 190.

This example illustrates that the firm is more likely to invest when a prepetition claimant provides the financing.[89] Therefore, borrowing from a lender with existing exposure to the debtor may mitigate to some extent the underinvestment problem, even if that lender is given no priority. A couple of other factors reinforce this result. First, given their prior relationship with the borrower, prepetition lenders have lower costs of screening new loan applications than outside lenders. Second, organizational behaviorists have demonstrated that executives often make investment decisions in ways that justify their previous choices, irrespective of expected outcomes.[90] As a result, executives have a tendency to escalate their commitment to a cause or a course of action even if it is not cost-effective. This judgmental bias on the part of the managers of prepetition creditors, particularly institutional lenders, is likely to counterbalance at least part of the underinvestment incentive. In fact, if this commitment bias causes too much of an eagerness to extend postpetition credit, it may result in overinvestment.

In sum, the identity of the postpetition lender does matter in a way bankruptcy courts have failed to appreciate. If the DIP lender is also a prepetition creditor, the risk of underinvestment is less severe, all other things being equal. If the lending arrangement proposed to the bankruptcy court involves a prepetition lender, the court should view more skeptically the need for priority debt to address the potential of underinvestment.

Suppose that the DIP lender has no prepetition claim and its postpetition debt now enjoys priority over all prepetition claims. The coalition receives all the value of the firm, or $90, in State 1, and the residual $Q - 40 in State 2. Its expected payoff is 0.5(Q + 50). This exceeds the investment of $100 if Q is greater than 150. The underinvestment incentive disappears as a result of the issuance of priority debt; however, an overinvestment problem replaces it. Firm A will exploit unprofitable opportunities if Q lies between 150 and 170. Therefore, even when an underinvestment problem exists to begin with, the issuance of priority debt may overshoot its mark and encourage invest-

89. This may have been the intuition behind one court's statement that the debtor was most likely to get financing from a prepetition lender with existing exposure to the debtor. *In re Sky Valley, Inc.*, 100 Bankr. 107, 113 (N.D. Ga. 1988), aff'd sub nom. *Anchor Savings Bank FSB v. Sky Valley, Inc.*, 99 Bankr. 117 (N.D. Ga. 1989).

90. See, for example, B.M. Staw, *The Escalation of Commitment to a Course of Action*, 6 Acad. of Mgmt. Rev. 577 (1981); Glen Whyte, *Escalating Commitment to a Course of Action: A Reinterpretation*, 11 Acad. of Mgmt. Rev. 311 (1986); A. Teger, *Too Much Invested to Quit: The Psychology of Escalation of Conflict* (Pergamon, 1980).

ment in risky opportunities that are not cost justified. The risk of overshooting depends on the severity of the underinvestment problem in the absence of priority debt.

Therefore, the decision to permit priority debt in the face of a risk of overstimulation of investment should depend on the relative concern with under- and overinvestment under the circumstances. The foregoing suggests that this is a function of the degree of insolvency and the riskiness of available projects. However, if the court lacks information about the debtor's investment opportunities, the following observations may be helpful. An informal renegotiation of claims whereby debtholders pay shareholders to undertake value-increasing projects can address underinvestment outside bankruptcy. In contrast, shareholders are less likely to initiate a similar resolution of the overinvestment problem by disclosing their incentive to invest in risky projects, unless the automatic stay in bankruptcy protects them from creditor enforcement powers. Therefore, Elazar Berkovitch and Ronen Israel argue that overinvestment is the more common problem with firms reorganizing in bankruptcy.[91] On the other hand, overinvestment is an inefficient action, while underinvestment is a problem of inaction. Therefore, in bankruptcy, the courts more easily can monitor and discipline the former problem directly by overseeing the investments of the debtor in possession. From this perspective, DIP financing regulation may serve as a complement to the direct control of overinvestment, by correcting the incentive to underinvest.

Since the outstanding debt of Firm A is unsecured, the priority envisaged in the example thus far may resemble the administrative expense or superpriority provided for in Section 364(b) and (c). The liens provided for in Section 364(c), either on unencumbered property or junior liens on encumbered assets, give the DIP lender essentially the same priority—above unsecured creditors and below prepetition secured claimants. Yet, at least two reasons suggest that it may be more effective to allow the debtor in possession to secure postpetition loans with security interests in unencumbered assets or junior security interests in encumbered assets. First, security interests offer more than simply a priority right: they confer contingent property rights by allowing secured parties to assume control of secured assets upon default without invoking the judicial process.[92] A growing body of academic literature

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91. Elazar Berkovitch and Ronen Israel, *The Bankruptcy Decision and Debt Contract Renegotiations* (unpublished manuscript, on file with the author).

92. The discussion in this Part focuses on a single investment decision and therefore assumes that the firm is liquidated as soon as the project, if undertaken, yields a payoff in one state of the world or the other. If, however, the firm were to make subsequent investment and financing decisions, the postpetition debtholders would be as concerned about the impact of such decisions on

has demonstrated that, by conferring contingent property rights on secured parties, security interests may act as effective complements and substitutes for debt covenants restricting wealth transfers from fixed to residual claimants.[93]

The second advantage of this option is that it gives the firm flexibility in granting priority to the DIP lender. Instead of receiving the administrative expense priority against the value of all assets of the debtor at liquidation, the DIP lender can be given limited priority under a Section 364(c)(ii) security interest—only with respect to a subset of the debtor's unencumbered assets. For example, the DIP financing might be secured by only postpetition assets. With respect to prepetition assets, the lender continues to rank equally with prepetition unsecured creditors. As illustrated below, the flexibility to grant such a limited priority may provide a solution to the underinvestment problem superior to that offered by an across-the-board administrative expense priority.

Suppose Firm A gives its new lender a security interest in all assets acquired postpetition. The new lender would enjoy priority with respect to the \$30 of assets produced by the project (such as receivables) in State 1 and \$Q in assets in State 2. To the extent that the value of the collateral falls short of the amount of the lender's claim, the DIP lender ranks equally with prepetition claims with respect to the \$60 of prepetition assets (such as the manufacturing plant). In State 1, the coalition receives \$30 from the project and therefore has an unsecured claim of \$70. Since total unsecured claims are \$170, the lender is also entitled to 7/17(60) or \$24.7 from the prepetition assets. In the aggregate, the coalition receives \$54.7 in State 1 and, since its priority does not matter in the solvency state, it receives the residual \$Q - 40 in State 2. Its expected payoff is $0.5(Q + 14.7)$. The expected payoff exceeds the investment of \$100 if Q is greater than 185.3. Therefore, this limited priority addresses the underinvestment problem of the no-priority case ($Q > 195$), without causing an overinvestment incentive in the way that an across-the-board priority might ($Q > 150$).

In sum, the conventional explanation for DIP financing states that priority debt is necessary to induce lenders to finance firms in bankruptcy. The proponents of the rationale have not advanced a plausible reason why lenders need such inducement. This Article suggests that bankruptcy law aims the inducement at the debtor in possession, as

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the value of their debt as if they were nonbankruptcy lenders. Therefore, they must rely on the terms of their debt contract with the debtor in possession (i.e., debt covenants) to address the agency problems.

93. See note 22.

agent of the firm's shareholders, to encourage management to invest in firm value maximizing opportunities that it might otherwise forego due to the underinvestment agency problem. The examples above demonstrate that management does not always need this inducement and, as in the case of Firm B, this inducement may stimulate further inefficient investment in risky projects whose cost exceeds their present expected value. While Firm A has an underinvestment problem in the no-priority case, the granting of an across-the-board administrative priority or superpriority to its new lenders may overstimulate investment and cause overinvestment in risky ventures. Borrowing from lenders with existing exposure to the debtor or granting security interests over a subset of the debtor's assets provide more subtle inducements that pose less of a threat of stimulating excessive investment.

V. Conclusion

Insolvency intensifies the agency problems of overinvestment and underinvestment and, in bankruptcy, the stay on enforcement rights causes the covenants of prepetition debt to lose all force. Without any substitute constraint on the decisionmaking of the debtor in possession, financial agency problems threaten large efficiency losses in bankruptcy. These agency problems may be mitigated somewhat by expanding the scope of managerial fiduciary duties to include creditors or by altering the corporate governance structure to shift control over decisionmaking to all or only a subgroup of creditors.

The Bankruptcy Code relies predominantly on judicial oversight to constrain the decisions of the debtor in possession. With respect to the firm's financial decisions, the Code substitutes judicial supervision under Section 364 for the covenants that constrain such choices in the nonbankruptcy world. This Article suggests how the court should exercise its discretion to promote firm value maximizing investment decisions. The issuance of priority debt under Section 364 addresses the problem of underinvestment in positive NPV projects. Bankruptcy judges should be alert, however, to the possibility that the issuance of priority debt may create excessive incentive to invest, causing overinvestment in risky, negative NPV projects. This Article demonstrates that bankruptcy law might reach a desirable balance if courts base the decision to authorize DIP financing on factors such as the degree of insolvency, the risk of the projects available to the firm, the availability of direct controls on the firm's investments, whether the lender is also a prepetition lender and whether the firm proposes to grant the lender administrative priority or security interests.

This Article isolates the DIP financing decision from the negotiations among stakeholders during Chapter 11 proceedings and the resulting restructuring of claims. Consideration of the interaction among these bankruptcy features should produce additional insights. For instance, the restructuring plans of insolvent debtors often deviate significantly from the absolute priority rule and give the old shareholders interests in the reorganized entities.[94] The prospect of a continuing stake in the firm may mitigate the shareholders' incentive to underinvest and, as a result, it may reduce somewhat the need for priority debt financing. Moreover, Part IV assumes that, since managers make DIP financing decisions early in the bankruptcy case, they continue to act as agents of shareholders. Future versions of the model might consider the effect of alternative assumptions regarding managerial interests on the under- and overinvestment incentives. For example, if the firm's expected going concern value is less than its liquidation value, the incentives of managers to avoid liquidation may reinforce the tendency of an insolvent firm to overinvest in risky projects, thereby increasing the inherent danger of Section 364 DIP financing arrangements. The analysis could be expanded in several other directions. For instance, one might look at the effect on investment incentives of features of financing arrangements other than priority. Project financing, in particular, is a species of secured debt and offers some promise of correcting both under- and overinvestment problems.[95] It would also be interesting to examine the impact of DIP financing rules on decisions other than investment choice, such as prebankruptcy financing decisions or the decision to initiate bankruptcy proceedings.

94. See, for example, Allan C. Eberhart, William T. Moore and Rodney L. Roenfeldt, *Security Pricing and Deviations from the Absolute Priority Rule in Bankruptcy Proceedings*, 45 J. Fin. 1457 (1990); Lawrence A. Weiss, *Bankruptcy Resolution: Direct Costs and Violation of Priority of Claims*, 27 J. Fin. Econ. 285 (1990); Lynn M. LoPucki and William C. Whitford, *Bargaining Over Equity's Share in the Bankruptcy Reorganization of Large, Publicly Held Companies*, 139 U. Pa. L. Rev. 125 (1990).

95. See Berkovitch and Kim, 45 J. Fin. Econ. at 777-78 (cited in note 45).

MATHEMATICAL APPENDIX

Assume the following:

(1) The firm is insolvent in that its liabilities exceed its assets and it cannot meet its payment obligations as they become due.

(2) The firm has stayed enforcement of claims by filing a bankruptcy petition, so that no amount is due to fixed claimants until the firm is liquidated.

(3) The outstanding claims are neither restructured nor renegotiated.

(4) All investors are risk neutral.

(5) Managers are perfect agents of shareholders.

(6) The shareholders, managers, and DIP lenders share the same information about payoffs and probabilities.

(7) The time value of money is zero.

The firm has no liquid assets, fixed assets of Y, and outstanding debt of D, where the values of D and Y are constant and $D > Y$. The firm has a nontransferrable opportunity to invest I in a project that will pay X in State A and $X + s$ ($s > 0$) in State B. The probability of State A is p and of State B, $(1 - p)$. Assume that, although X may be positive or negative, the value of the firm's assets in either state will be positive ($X > - Y$). The firm decides whether to invest at Time 1 and the state of the world is revealed at Time 2. In order to abstract from the restructuring process and to concentrate on the financing and investment decisions, assume that firm assets are sold and the proceeds are distributed to the claimants at Time 2. Since the firm is insolvent, the shareholders receive nothing at liquidation if the firm fails to undertake the project.

Shareholders will contribute new equity to fund investment in the opportunity only if the expected net present value of the project (defined as $NPV = X + (1 - p)s - I$) exceeds the amount by which the firm's liabilities exceed its assets ($D - Y$). They will forego profitable opportunities where $D - Y > NPV > 0$ since, by assumption, they cannot renegotiate the face value of the outstanding debt. The firm is more likely to fund these opportunities by issuing debt.

The firm seeks to finance the project by borrowing I. The shareholders and the lender will reach an agreement to finance the project if they can expect to enjoy a positive net payoff from the venture. The rate of interest determines the manner in which they will share this payoff. For simplicity, I assume that the postpetition lender agrees to subordinate its claim for interest to the firm's unsecured debt. Therefore, the coalition of shareholders and new lender will finance the project if the sum of existing assets (Y) and the net present value (NPV) of the project exceeds the expected amount to which prepetition creditors will be entitled to at liquidation. Otherwise, the shareholders will not have the incentive to induce management to exploit the opportunity. Since I assume that the shareholders and the DIP financer work as a coalition, the calculation of the net present value excludes the interest cost of the debt. Since the risk-free rate is assumed to be zero, the difference between the expected payoff of the project and the investment, I, equals the net present value (NPV).

The project may fall into one of the following categories, depending on its payoffs: (i) the firm will become solvent in either state of the world: $Y + X \geq D + I$ (solvency scenario), (ii) the firm will remain insolvent in both states: $D + I > Y + X + s$ (persistent insolvency scenario), and (iii) it will be insolvent in State A, but will become solvent in State B: $Y + X + s \geq D + I > Y + X$ (intermediate scenario). The first scenario is uninteresting because the project necessarily has positive NPV and, since all claimants get paid in full in the end, the project is in everybody's interest. Given the assumption that the DIP interest claim is subordinated to the firm's unsecured debt, the second scenario is also not worth examining. The firm's certain insolvency means that the coalition of shareholders and DIP lender cannot receive any return and therefore will not invest, even if the project has a positive NPV. Therefore, the discussion that follows focuses on the third scenario, in which the danger exists that the firm may either underinvest in the positive NPV projects or overinvest in negative NPV projects, depending on the circumstances.

Case (i): DIP lender is not prepetition claimant and enjoys equal priority with prepetition unsecured claimants.

Suppose that the postpetition lender is not a prepetition creditor and is not given priority under Section 364. The shareholders and postpetition lender will agree to finance the project if the sum of the existing assets, Y, and the NPV of the project exceeds the expected amount that will go to the prepetition lenders at liquidation:

$NPV + Y - [p\mathrm{Min}(a(Y + X),D) + (1 - p)\mathrm{Min}(a(Y + X + s),D)] > 0$ where $NPV = X + (1 - p)s - I$ and $a = D/(D + I)$, the proportion of prepetition claims to total claims at Time 2.

In this and all subsequent cases, suppose that the payoffs from the project are such that the firm will continue to be insolvent in State A, but will achieve solvency in State B: $Y + X + s \geq D + I > Y + X$. In this intermediate scenario, the condition for investment is:

$NPV > [pa(Y + X) + (1 - p)D] - Y$, or
$NPV > paX + (1 - p)D - (1 - pa)Y$

Let the right side of the inequality be called Z_1. The firm value maximizing investment condition is NPV $>$ 0. If the firm fails to invest when NPV is positive, then there is underinvestment. If the firm invests when NPV is negative, then there is overinvestment. Therefore, the firm will tend to underinvest when Z_1 is positive and overinvest when it is negative. The firm is more likely to underinvest when D is large, X is large, Y is small and I is small (i.e., a is large). In other words, underinvestment is more likely when the extent of insolvency (D - Y) is great and when the loss on the downside (I - X) is small.

Case (ii): DIP lender is not prepetition claimant, but enjoys higher priority with respect to its DIP debt.

Suppose that the investment of the new lender is given either administrative priority or superpriority. Then, using the same approach as in case (i), the shareholders and new lender will invest in the project in the intermediate scenario if

$$NPV > pMax(Y + X - I,0) + (1 - p)D - Y$$

Let the right side of this inequality be Z_2. The firm will tend to underinvest if Z_2 is positive and overinvest when it is negative. Now, compare Z_1 and Z_2.

If $Y + X < I$, then $Z_2 = (1 - p)D - Y = Z_1 - pa(X + Y)$, since $X > -Y$. If $Y + X > I$, then $Z_2 = pX + (1 - p)D - (1 - p)Y - pI = Z_1 - p[I - (1 - a)(X + Y)]$, where the difference Z_1 minus Z_2 is positive.

Therefore, since Z_1 is larger than Z_2, the Section 364 priority given to the new lender over prepetition creditors increases the tendency for the firm to invest. Therefore, this priority mitigates the underinvestment problem, if it exists (that is, $Z_1 > 0$). However, the priority may overshoot its mark and solve the underinvestment problem by creating incentives that induce overinvestment in risky projects (i.e., $Z_1 > 0 > Z_2$). If the problem is one of overinvestment to begin with ($Z_1 < 0$), the priority of postpetition financing exacerbates the problem.

Case (iii): DIP lender is prepetition claimant, whose new debt enjoys equal priority with prepetition unsecured claimants.

Suppose that the firm has two prepetition creditors who hold unsecured claims, D_1 and D_2. The issue in this case is whether the firm's project will be financed by one of the prepetition creditors, the creditor holding D_1. Let $b = D_2/D$, the proportion of the claim D_2 to the total prepetition claims, and let $c = D_2/(D + I)$, the proportion of D_2 to total prepetition and postpetition claims (recall that the claim for interest on the postpetition debt is assumed to be subordinate). The project will be undertaken if

$$NPV + Y - [pc(Y + X) + (1 - p)D_2] - (1 - b)Y > 0,$$

where $(1 - b)Y$ is the amount that D_1 would receive if the firm were liquidated without investing in the project. Therefore, the investment condition is

$$NPV > pcX + (1 - p)D_2 - (b - pc)Y$$

Let the right side of this inequality be Z_3.

As in the previous two cases, if the right side (Z_3) of the investment condition is positive, the firm will underinvest; if it is negative, the firm will overinvest. However, two observations may be made by comparing the investment conditions when the postpetition lender is an outside investor and is not given Section 364 priority to the case when it is a prepetition creditor with no priority. First, while the likelihood of underinvestment in both cases varies with the magnitude of X and inversely with the size of Y and I, the relationship with the amount of debt is different. In case (i), it varies directly with the amount of prepetition debt. In this case, however, the propensity of the holder of D_1 to invest varies with the proportion of D_2 to the total amount of prepetition debt (i.e., $b = D_2/D$), because that ratio reflects the extent to which the gain from the project will accrue to each prepetition creditor.

Second, $Z_3 = b[Z_1]$, where $b = D_2/D < 1$. Therefore, if there is underinvestment when the investor is an outsider with only unsecured priority (i.e., Z_1 is positive), then the problem will be less severe when the DIP lender is a prepetition claimant (i.e. $Z_1 > Z_3$). This result is understandable because, in the latter case, the postpetition lender can share in the upside prospects of the project as both a postpetition and a prepetition claimant. If the problem in the first case is one of overinvestment (i.e., Z_1 is negative), then it will also be less severe if the DIP lender is a prepetition claimant, since $Z_1 < Z_3$.

Case (iv): DIP lender is prepetition claimant, whose new debt enjoys higher priority than prepetition claims.

If the postpetition investment of I by the holder of D_1 enjoys elevated priority, then investment will occur if

$$NPV + Y - [pbMin(X + Y - I,0) + (1 - p)D_2] - (1 - b)Y > 0, \text{ or}$$
$$NPV > pbMax(X + Y - I,0) + (1 - p)D_2 - bY$$

Let the right side of the inequality be Z_4. Compare Z_3 and Z_4.

If $X + Y < I$, then $Z_4 = (1 - p)D_2 - bY = Z_3 - pc(X + Y)$.
If $X + Y > I$, then $Z_4 = pbX + (1 - p)D_2 - b(1 - p)Y - pbI=$

Z_3 - p[(b - c)(X + Y) - bI]

Substituting for b and c and using the fact that D + I > X + Y, we find that the last term is negative. Therefore, $Z_3 > Z_4$.

Therefore, as in the case of the outside lender, the granting of priority to new financing by a prepetition claimant mitigates the underinvestment problem, but aggravates the tendency to overinvest. In addition, the relationship between Z_4 and Z_2 is the same as that between Z_3 and Z_1: i.e. $Z_4 = b[Z_2]$.

Table 1 summarizes the investment conditions from cases (i) to (iv). Given any set of information about the variables, one could choose the best DIP lender and its optimal priority ranking by comparing the values of $Z_1, \ldots ,_4$. The conditions reveal the following relations between the cases:

(a) Granting priority to a DIP lender increases the tendency to invest, whether or not the lender is a prepetition claimant—that is: $Z_1 - Z_2 = (1 - p)D - Y$, if $Y + X < I$ and $p[I - (1 - a)(X + Y)]$, if $Y + X > I$; and $Z_3 - Z_4 = b[Z_1 - Z_2]$. Therefore, in general, priority should be given to the DIP lender if there is a concern about underinvestment whether or not the DIP lender is a prepetition claimant and if the granting of priority does not create an overinvestment problem. If the latter condition does not hold, the cure may be less desirable than the problem.

(b) The underinvestment and overinvestment problems are each less severe when the DIP lender is also a prepetition claimant, whether or not the DIP lender is given priority. That is: $Z_3 = b[Z_1]$ and $Z_4 = b[Z_2]$; $b < 1$. Therefore, bankruptcy law should encourage financing by existing claimants of the debtor in possession, to the extent possible.

Case (v): DIP lender is not a prepetition claimant and its debt is secured only by unencumbered postpetition assets.

Suppose the outside lender in case (i) is given a security interest in X, but the outside lender retains equal priority with prepetition debtholders with respect to prepetition assets Y. Assume that $X > 0$, so that the outcome of the project cannot impair the prepetition value of the assets of the firm. Then, the payoff to the prepetition claimants at liquidation is

$$p(X + Y - I) + (1 - p)D, \text{ if } X > I$$
$$p(a'Y) + (1 - p)D, \text{ if } X < I, \text{ where } a' = D/(D + I - X).$$

If $X > I$, then the principal of the DIP debt is fully secured in either state of the world. Therefore, the DIP lender is in the same position as in case (ii) where it enjoyed priority with respect to all the assets of the firm. Accordingly, the investment condition is the same as that in case (ii). If $X < I$, then the investment condition is

$$NPV > (1 - p)D - (1 - pa')Y$$

Let the right side of the inequality be Z_5. It can be shown that $Z_1 \geq Z_5 \geq Z_2$.[96] Therefore, the securing of DIP financing by postpetition assets can ameliorate the underinvestment problem with a smaller risk of causing an overinvestment problem.

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96. $Z_1 = Z_5 + p[aX - (a' - a)Y]$. Since $a' - a = aX/(D + X - I)$, $aX - (a' - a)Y = aX[1 - Y/(D + I - X)]$, which is positive since $I > X$ (by definition) and $Y < D$ (insolvency). Therefore $Z_1 > Z_5$.

We can similarly show that $Z_5 > Z_2$. If $X + Y < I$, $Z_5 = Z_2 + pa'Y$.
If $X + Y > I$, $Z_5 = Z_2 - pX - p(1 - a')Y + pI = Z_2 + p[I - X - (1 - a')Y] = Z_2 + p[I - X - (I - X/(D + I - X))Y]$ (substituting for a') $= Z_2 + p(I - X)[1 - Y/(D + I - X)]$.
which is positive for the same reasons as above. Therefore, $Z_5 > Z_2$.

Table 1

INVESTMENT CONDITIONS

Lender \ Priority	No DIP priority	DIP priority
Outside DIP Lender	(i) NPV> paX + (1-p)D - (1-pa)Y	(ii) NPV> pMax(Y+X-I,O) + (1-p)D - Y
Prepetition DIP Lender	(iii) NPV> pcX + (1-p)D_2 - (b-pc)Y	(iv) NPV> pbMax(Y+X-I,O) + (1-p)D_2 - bY