

THE ECONOMICS OF LEVERAGED TAKEOVERS

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Financing of hostile takeovers has emerged as a central issue in the ongoing debate concerning corporate takeovers. Concomitant with the increase in the dollar value of takeovers during the past few years has been a significant increase in the percentage of tender offer financing accounted for by bank borrowing and the issuance of high yield debt, (that is, debt securities which are rated below Standard and Poor's BBB—or Moody's Baa3),¹ hereafter referred to as junk bonds, have accounted for an increasingly greater percentage of takeover financing. A Securities and Exchange Commission (SEC) study, for example, found that the internal funds of acquiring firms, which proved 47.1% of takeover financing in 1981, financed only 6.8% of the value of takeovers that occurred during the first six months of 1985.² During the same period, bank borrowing by acquiring firms increased from 50.5% of takeover financing to 77.6%.³ The issuance of junk bonds by acquiring firms, a rare occurrence in 1981, represented 13.6% of takeover financing in 1985.⁴

The increased use of debt to finance corporate takeovers appears to be directly related to the recent increase in the size of target firms. Indeed,

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1. High yield debt (junk bonds) are corporate bonds that are rated below investment grade by the major rating agencies—Standard and Poor's and Moody's Investor Service. These ratings reflect each agency's estimate of the firm's ability to repay its debt obligation (i.e., to pay interest and repay principal when due). The highest rating is AAA ((Aaa) for Moody's). These firms have an extremely strong ability to pay interest and repay principal. The bonds are then ranked by this ability on the following scale: AA(Aa), A(A), BBB(Baa), BB(Ba), B(B). Some bonds are even rated below B. Bonds rated BB(Ba) and below are regarded as speculative bonds and are also referred to as high-yield bonds or junk bonds. For more information, see: E. ALTMAN & S. NAMMACHER, *INVESTING IN JUNK BONDS* (1987).

2. OFFICE OF THE CHIEF ECONOMIST, SECURITIES AND EXCHANGE COMMISSION, *NONINVESTMENT GRADE DEBT AS A SOURCE OF TENDER OFFER FINANCING*, reprinted in [Current Binder] Fed. Sec. L. Rep. (CCH) ¶ 84,011 (June 20, 1986).

3. *Id.*

4. *Id.*

the advent of hostile offers for large corporations seems inextricably linked to the availability of debt financing, especially junk-bond financing, for acquiring firms. Historically, "Fortune 100" companies were thought to be immune from hostile takeovers. During the past few years, however, numerous Fortune 100 firms, including Gulf Oil, Unocal, Phillips Petroleum, Union Carbide, USX, and Goodyear Tire & Rubber, have become target firms in hostile tender offers. The internal funds of acquiring firms provide only a small percentage of the funds necessary to acquire control of these larger target firms.⁵ Consequently, takeover bids for larger firms entail considerably more debt financing than tender offers for smaller firms.⁶

These developments have focused the attention of legislators, regulators, and commentators on the issue of leveraged takeovers. During 1985, Congress considered four different bills to regulate the use of junk bonds as a means of financing corporate takeovers⁷ and convened more than a dozen hearings related to leveraged takeovers. In response to petitions filed by four target firms during hostile takeover battles,⁸ the Federal Reserve Board, in January 1986, issued an interpretative rule which extended the margin requirements of Regulation G to some leveraged takeovers.⁹ Various federal and state regulatory agencies are studying proposals to restrict the ability of savings and loan institutions and insurance companies to invest in junk bonds.¹⁰ Infotrac, a news retrieval system that surveys articles in the popular press, academic literature and trade journals, lists 1 citation to an article on junk bonds in 1984, 34 citations in 1985, and 139 citations to articles on junk bonds in 1986.

Critics of hostile takeovers have raised several objections to leveraged takeovers which purportedly justify a regulatory response. Many critics argue that so-called corporate raiders, in their quest for financial profits,

5. The SEC study shows that the acquiring firms' internal funds accounted for 66.7% of takeover financing for the 30 smallest takeovers during the first three quarters of fiscal year 1985, but only 8.3% for the 30 largest takeovers during this period. *Id.*

6. The SEC study found that bank borrowing financed 33% of the 30 smallest takeovers, but financed 56.8% of the 30 largest takeovers. *Id.* The issuance of junk bonds provided no funding for the 30 smallest takeovers, but funded 32.9% of the 30 largest takeovers. *Id.*

7. S. 1286, 99th Cong., 1st Sess., 131 CONG. REC. S8020 (daily ed. June 12, 1985) (introduced by Sen. Pete Domenici); H.R. 2476, 99th Cong., 1st Sess., 131 CONG. REC. H3197 (daily ed. May 13, 1985) (introduced by Rep. William Richardson).

8. Unocal, Pacific Lumber, Revlon, and Union Carbide filed petitions.

9. 51 Fed. Reg. 1781 (1986) (to be codified at 12 C.F.R. § 207.112).

10. See, e.g., *Bank Board Staff Expects to Offer Rules Curbing Thrifts' "Junk Bond" Investments*, Wall St. J., September 8, 1986, at 7, col. 1.

impose artificially high debt burdens upon target firms which greatly undermine the future solvency of these firms.¹¹ In order to make the substantial coupon payments on this debt after the takeover, it is argued, raiders must sell corporate assets and reduce expenditures on capital investment and research and development. Furthermore, to prevent a hostile takeover, many large corporations have “voluntarily” restructured, often finding that the market positively revalues their equity when the corporation issues more debt, buys back stock, and sells some assets. These critics cite data which show that the ratio of the value of debt to the value of equity for non-financial corporations has increased significantly during recent years.¹² In short, critics argue that leveraged takeovers preoccupy corporate managers with short-term corporate goals and make our economy vulnerable to a severe depression in the event of an economic downturn or an increase in interest rates.

Leveraged two-tier takeover offers elicit particularly harsh criticism.¹³ In a two-tier takeover, the bidder acquires a partial stake in the target corporation by a tender offer and then issues debt securities in a second-tier exchange offer to complete the takeover. Subordinated debt securities typically are issued in the second tier, and it is argued that these securities are likely to be valued at a deep discount from their face value. Some critics assert that shareholders who wish to avoid the second-tier compensation in highly leveraged two-tier offers are “coerced” into accepting the cash premium in the first-tier. This shareholder coercion facilitates the bidder’s acquisition of the target firm but, critics argue, treats some target shareholders unfairly and may also allow bidders to acquire target firms at less than their “intrinsic” value.

Finally, some critics of leveraged takeovers charge that, although these transactions may create significant wealth for shareholders in target firms, they also may impose substantial losses on debtholders in target

11. See, e.g., *Impact of Corporate Takeovers: Hearings Before the Subcomm. on Securities of the Comm. on Banking, Housing, and Urban Affairs on the Effect of Mergers on Management Practices, Cost Availability of Credit, and the Long-Term Viability of American Industry*, 99th Cong., 1st Sess. 7, 18-19 (1985) (statement of Martin Lipton, senior partner of Wachtell, Lipton, Rosen & Katz) [hereinafter *Hearings on the Effect of Mergers*].

12. See, e.g., BOARD OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM, BALANCE SHEET FOR THE U.S. ECONOMY, 1945-83, at 36-45 & Table 705 (Nov. 1984).

13. See, e.g., *Hearings on the Effect of Mergers*, *supra* note 11, at 985 (statement of Kenneth H. Miller, Managing Director of Merrill Lynch, Pierce, Fenner & Smith’s Department of Mergers and Acquisition).

firms.¹⁴ If debtholders' (and preferred stockholders') losses exceed stockholders' gains, then corporate takeovers actually reduce the value of target firms.

This Article examines these concerns about debt financing of corporate takeovers from an "efficient markets" perspective.¹⁵ The efficient-market hypothesis has important implications for public policy toward corporate takeovers. Because a takeover involves the payment of premiums to target shareholders, prospective bidders must perceive a way to raise the target firm's value, that is, the discounted cash flow of the target firm. Unless the combined firms' reduced tax liability or greater ability to fix product prices at anti-competitive levels finance these premiums, the expected increase in cash flow must result from economics of scale, vertical synergies, or improved management of the target firm.¹⁶

We argue that junk-bond financing facilitates takeovers which in turn promote economic efficiency. Critics of leveraged takeovers, in our view, exaggerate the risks associated with these transactions, and in some instances, misunderstand the nature of corporate debt. After illustrating the structure of a leveraged takeover with an analysis of Mesa Petroleum's unsuccessful bid for Unocal, this Article seeks to correct the mis-

14. See, e.g., M. McDaniel, *Bondholders and Corporate Governance—A Supplement* (March 10, 1986) (unpublished manuscript).

15. Gilson and Kraakman describe the efficient market hypothesis as "the context in which serious discussion of the regulation of financial markets takes place." Gilson & Kraakman, *The Mechanisms of Market Efficiency*, 70 VA. L. REV. 549, 550 (1984) (emphasis in original). According to the efficient-market hypothesis, security "prices at any time 'fully reflect' all available information." Fama, *Efficient Capital Markets: A Review of Theory and Empirical Work*, 25 J. FIN. 383 (1970). Economists base their widespread acceptance of the efficient-market hypothesis not simply on a dogmatic belief in the informational content of prices, but on a large body of empirical evidence, and the logic of the arbitrage process:

It is very unlikely that price and "value" will diverge in large markets for shares. If there were such divergences, investors could reap substantial gains by identifying and buying underpriced shares and selling overpriced shares. Since there are many sophisticated investors with ample capital, the arbitrage process would proceed quite quickly, and it would become impossible to make systematic gains by finding undervalued shares. . . . The process of estimation and trading leads to prices that embody all of the available information about the stock.

Easterbrook & Fischel, *The Proper Role of a Target's Management in Responding to a Tender Offer*, 94 HARV. L. REV. 1161, 1165 (1981) (footnote omitted).

16. As Jensen has noted:

The takeover market . . . provides a unique, powerful, and impersonal mechanism to accomplish the major restructuring and redeployment of assets continually required by changes in technology and consumer preferences. Recent changes occurring in the oil industry provide a good example. Scientific evidence indicates that activities in the market for corporate control almost uniformly increase efficiency and shareholders' wealth.

Jensen, *Takeovers: Folklore and Science*, 62 HARV. BUS. REV. 109, 120 (1984).

perceptions about corporate debt with a discussion of the economics of corporate leverage. Finally, we use the Mesa-Unocal case to evaluate the claims made by critics of leveraged takeovers.

I. STRUCTURE OF A LEVERAGED TAKEOVER—THE MESA-UNOCAL CASE

Although leveraged takeovers differ from case to case, Mesa Petroleum Company's unsuccessful hostile takeover bid for Unocal Corporation illustrates the typical structure of a leveraged takeover. Four characteristics common to leveraged takeovers were present in the Mesa-Unocal case: 1) a great disparity in the relative size of the bidder vis-à-vis the target; 2) an offer at a substantial premium over the pre-offer price of the target's common stock; 3) the use of a shell corporation to make the offer; and 4) heavy reliance on debt to finance the offer.

Unocal, the parent company of Union Oil Company of California, had revenues of \$11.5 billion in 1984. Ranked thirty-first on the 1984 Fortune 500 list, Unocal employed 20,664 workers, principally in the exploration, production, transportation, refining, and marketing of crude oil and natural gas. In addition, Unocal was an integrated producer of petrochemical products, industrial and agricultural chemicals, geothermal resources, and it developed oil shale, coal, and real estate. By contrast, Mesa had revenues of \$413.5 million in 1984, less than 4% of Unocal's 1984 revenues. Unlike Unocal, Mesa was neither a fully integrated nor diversified oil company. Employing 657 workers, Mesa was engaged exclusively in the exploration and production of oil, natural gas condensate, and natural gas liquids. The value of Unocal, measured by the sum of the book value of its debt and the market value of its equity, was approximately \$9 billion in 1984; by comparison, the corresponding value of Mesa in 1984 was only \$3.3 billion.¹⁷ Moreover, Unocal had a significantly lower ratio of long-term debt to common equity than Mesa—0.40:1 to 1.74:1.

On February 14, 1985, Mesa disclosed in a Schedule 13D filing with the SEC that it had acquired 7.9% of Unocal's common stock and an-

17. Although the summed market value of a firm's debt and equity provides the best estimate of its discounted cash flow, market values of corporate debt generally are unavailable. Thus, following convention, we approximated the value of Unocal's and Mesa's debt claims by the book value of their debt. At the end of 1984, the book value of Unocal's debt amounted to \$2.6 billion. The market value of its common equity totaled \$6.4 billion. Mesa's long-term debt had a book value of \$2.1 billion. The market value of its common stock totaled \$1.1 billion.

nounced its intention to increase its holdings. Twenty business days prior to this disclosure, on January 17, Unocal's common stock closed at a price of \$34.625 per share. On the day of Mesa's disclosure, Unocal's common stock closed at \$48 per share. Hence, during the period in which Mesa accumulated its initial stake in Unocal, the market, presumably speculating about a pending tender offer, revalued Unocal's common stock by 38.6%. The market positively revalued Mesa's common stock as well. Mesa's stock increased 8.7%, from \$17.375 per share to \$18.875 per share. During this same period, the Standard & Poor's (S&P) 400 Industrial Index increased only 6.9%.

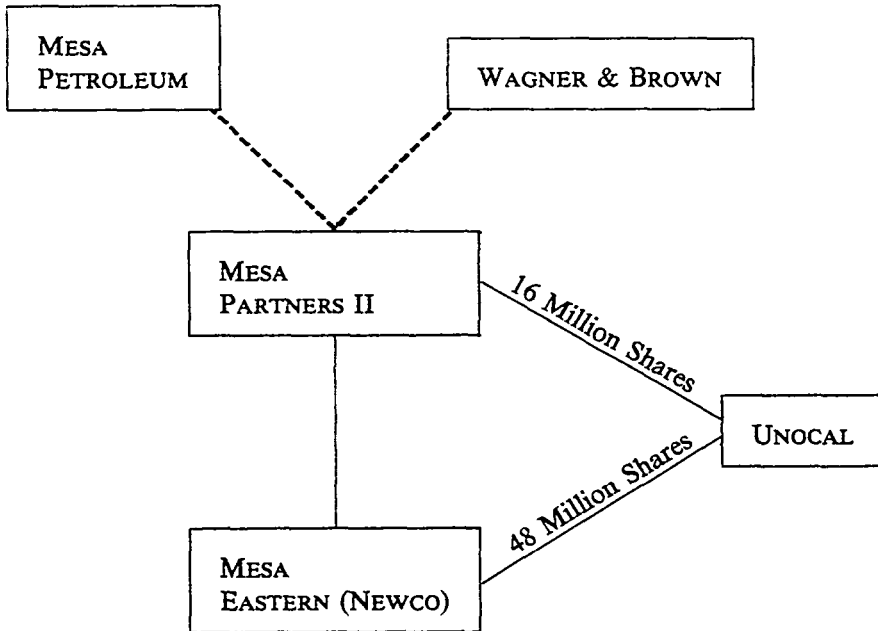
On April 8, Mesa formally announced its two-tier takeover bid for Unocal. In the first step, Mesa offered \$54 in cash per share for 64 million shares of Unocal's common stock. If successful, this offer, combined with Mesa's earlier open-market acquisitions, would give Mesa control of 50.1% of Unocal's outstanding common stock. Mesa would follow this first-step offer with an offer to purchase the remaining shares of Unocal's common stock in exchange for a package of debt securities with a face value of \$54 per share. This debt would become the obligation of the entity surviving the merger of Unocal and Mesa.

On the day of Mesa's announcement, Unocal's common stock closed at a price of \$49.75 per share, reflecting the market valuation of Mesa's two-tier offer (discounted by the market's expectation of the offer's probability of success). Coupled with its pre-offer acquisitions, Mesa's tender offer substantially revalued Unocal's common equity—from January 17 to April 8 the market of Unocal's shares had increased 43.7%. On April 8, Mesa's common stock closed at \$19, representing a 9.4% increase in value since January 15. During the same period the S&P Industrial Index increased only 4.1%.

Employing a technique common to many bidders in leveraged takeovers, Mesa created a shell company to consummate its bid for Unocal. Figure 1 diagrams the structure of the transaction. Mesa Petroleum and a partnership, Wagner & Brown, created two companies for the purpose of making the offer: Mesa Partners II and its wholly owned subsidiary, Mesa Eastern, referred to as Newco. Mesa Partners II held the 23.7 million shares of Unocal common stock acquired in the open market prior to the tender offer. Mesa's initial tender offer consisted of Mesa Partners II's offer for 16 million shares and Newco's offer for 48 million shares. Upon successful completion of the two-tier offer, Unocal would merge into Newco. Mesa Partner II would transfer its holdings of Unocal stock

to Newco, and Newco would assume responsibility to pay the debts of Mesa Partners II. Mesa Petroleum would then manage Unocal's assets through Newco.

FIGURE 1



Financing for Mesa's initial tender offer came from the following sources:

Capital Contribution from Mesa Partners II	\$ 864 million
Newco's issuance of senior notes	1,800 million
Newco's issuance of senior preferred stock	600 million
Newco's issuance of common stock	2 million
Newco's issuance of junior preferred stock	<u>587 million</u>
	\$3,853 million

Mesa Partners II's capital contribution came from borrowings from a group of banks. The 39.7 million shares of Unocal stock that Mesa Partners II would hold upon successful completion of the offer secured these loans, which therefore became subject to Regulation U,¹⁸ the Federal Reserve Board's margin requirement pertaining to bank loans.

18. 12 C.F.R. § 221.1 (1986).

If Mesa successfully completed its first-step offer, Newco's assets would consist of \$270.5 million in cash and short-term investments and \$4,645 million representing its holdings of Unocal stock (net of the estimated \$395.5 million expenses of the offer). None of these assets, however, would secure Newco's debt obligations. Newco's senior notes would mature in 1992, but could be redeemed after 1987. Newco scheduled its senior preferred stock for mandatory redemption in 1995 and its junior preferred stock in 1994.

In the second-step merger, Newco would issue an additional \$4,708.8 million in subordinated notes and preferred stock in exchange for the remaining 49.9% of Unocal's common stock. Through its investment banker, Drexel Burnham Lambert, Inc., Mesa also received commitments from investors to purchase the securities that Newco would issue if the first-tier offer succeeded. In exchange for these commitments, Mesa paid the prospective investors fees totaling \$22.5 million. If the offer failed, Newco would issue no securities, and Mesa would forfeit the commitment fees.

Table 1 contains the pro forma capitalization of Newco pending successful execution of the two-tier bid.¹⁹ The data reveal that the book value of Newco's long-term debt and preferred stock would total \$10,882.2 million. Newco's common equity would have a book value of \$10 million. Combining Newco's capital structure with Mesa's pre-offer structure reveals that, if its offer succeeded, Mesa's capital structure (i.e., the capital structure of the combined companies) would consist of approximately \$11,365.7 million in long-term debt and \$1,232 million in common equity, a debt-to-equity ratio of approximately 9.23:1. In addition, the combined company would have \$1,641.5 million in preferred stock outstanding.

In short, Mesa financed its offer for Unocal almost exclusively by debt. If successful, the offer would have resulted in a company with an extremely high debt-equity ratio judged by "normal" industry standards. Mesa, however, terminated its bid after Unocal successfully blocked Mesa's takeover attempt with its own leverage-increasing recapitalization plan.

19. See *The Financing of Mergers and Acquisitions: Hearings Before the Subcomm. on Domestic Monetary Policy of the Comm. on Banking, Finance and Urban Affairs, 99th Cong., 1st Sess.*, 217 (1985) (document submitted to the Securities and Exchange Commission regarding purchase of stock in Unocal Corp.).

TABLE 1: PRO FORMA CAPITALIZATION TABLE FOR NEWCO,
PENDING SUCCESSFUL EXECUTION OF TWO-STEP TENDER
OFFER (IN MILLIONS)

	Historical (Unocal)	Pro Forma Adjustments	Pro Forma (Combined) Unocal-Newco
Current Portion of Long-Term Debt and Capital Lease Obligations	\$ 217.1		\$ 217.1
Capitalization:			
Existing Bonds, Debentures, Notes and Capital Lease Obligations	1,267.9		1,267.9
Indebtedness incurred to Repay			
Bank Debt of Affiliates	-	\$ 864.0	864.0
Series A Senior Notes	-	1,000.0	1,000.0
Series B Senior Note	-	800.0	800.0
Senior Subordinated Notes	-	600.0	600.0
Subordinated Notes to be Issued in Merger	-	4,708.0	4,708.0
Preferred Stock to be Issued in Merger			
Senior Exchangeable Preferred Stock	-	-	-
Junior Preferred Stock:			
Series A, owned by Mesa	-	586.5	586.5
Series B, owned by Partners	-	1,271.8	1,271.8
Less Valuation Adjustment	-	(216.8)	(216.8)
Newco Common Stock	-	10.0	10.0
Existing Stockholders' Equity	<u>5,694.3</u>	<u>(5,694.3)</u>	<u>-</u>
Total Capitalization	\$6,962.2		\$10,892.2

II. ECONOMICS OF CORPORATE LEVERAGE

Critics of leveraged takeovers have made many broad assertions about the use of debt to finance these transactions. Often, these critics erroneously analogize corporate debt to personal or government debt.²⁰ This leads many critics to decry the burgeoning corporate debt as threatening to catapult the economy into the throes of depression.²¹ These critics,

20. See *infra* text accompanying note 21.

21. *Hearings on the Effect of Mergers*, *supra* note 11, at 72 (statement of Thornton Bradshaw)

however, misperceive the problem. Although there are costs associated with higher levels of debt, these costs do not arise simply by altering the mix of debt and equity. Thus, before turning to the specific arguments against leveraged takeovers, it is important to isolate the potential costs of these transactions.

In discussing the economics of corporate leverage, it is useful to examine corporations from a contractual, or agency, perspective.²² Viewed from this perspective, corporations are comprised of contractual arrangements involving individuals (e.g., workers, suppliers, debtholders, bondholders) who contribute resources to the firm in exchange for a claim on the firm's expected revenues. Of course, the claimants differ with respect to whether their claim is fixed or variable, when their claim is paid, the priority of their claim, and so forth.

If the contribution of the claimants' resources is not perfectly synchronized with the payment of their claims, then the claimants effectively loan resources to the firm in exchange for a future payment. For example, employees typically contribute labor time to firms in exchange for a wage and benefit package that is financed out of the firms' expected revenues.²³ Workers who receive monthly compensation effectively "loan" their labor time to the firm in exchange for a claim on the firm's revenues one month hence. Similarly, all deferred compensation and pension benefits represent employees' claims on future revenues in exchange for services already rendered. Although the term "leverage" conventionally is affixed to only a subset of a firm's contractual arrangements, leverage actually characterizes most of the contracts between a firm and its claimants.

In many respects, debtholders and stockholders are similar to other claimants. Debtholders and stockholders contribute a resource, namely financial capital. In exchange they receive a claim on the firm's expected revenue stream. Following convention, we will refer to the claim of debtholders and stockholders as a claim on *cash flow*—that portion of the firm's revenue stream remaining after the firm pays other claimants.

("We are witnessing the 'leveraging of America.' There are alarming prospects for massive accumulations of unnecessary corporate debt. . . . I am concerned . . . about the long-range implications of forced leveraging of the American corporation, particularly if there is an economic downturn.")

22. Seminal articles that developed this perspective are Alchian & Demsetz, *Production, Information Costs, and Economic Organization*, 62 AM. ECON. REV. 777 (1972); Jensen & Meckling, *Theory of the Firm: Managerial Behavior, Agency Costs, and Capital Structure*, 3 J. FIN. ECON. 305 (1976).

23. Armen Alchian made this point to us in a conversation.

Because the controversy over leveraged takeovers concerns the “proper” mix of corporate debt and equity in firms’ capital structures, a close examination of the economic distinction between these two classes of claimants is appropriate. First, both debtholders and stockholders effectively lend money to the firm in exchange for some expected payment stream. In exchange for their funds, debtholders (except, of course, holders of zero-coupon bonds) receive a *promised* stream of coupon payments in addition to the payment of principal upon maturity of the loan. Thus, debtholders have a fixed claim on the firm’s cash flow, and their claim has a higher priority than the stockholder’s claim. Debtholders may “purchase” further protection of their claim in the form of sinking-fund provisions or bond covenants restricting the firm’s right to alter dividend policy, sell assets, or issue more debt.

In exchange for their funds, stockholders receive a property right to the firm’s residual value—the difference between the liquidation value of the firm’s assets and the discounted value of its other outstanding claims. The firm usually pays out part of this value periodically to stockholders in the form of dividend payments. These payments are analogous to coupon payments received by debtholders. Unlike debtholders, however, stockholders are not promised a predetermined stream of dividend payments and do not receive the principal value of their loan at a maturity date. Rather, stockholders receive a return according to the firm’s residual value. Unanticipated changes in a firm’s cash flow, therefore, have a greater effect on the wealth of stockholders than on the wealth of debtholders.

This discussion demonstrates that debtholders and stockholders are not distinguished, in any economic sense, by whether or not they lend funds to the firm. Only the nature of the firm’s obligation to repay their respective “loans” distinguishes their claims. Debtholders have greater certainty vis-à-vis stockholders that the firm will repay their loan in full because they have a fixed claim and a higher priority. The failure to recognize that both debt and equity effectively constitute corporate borrowing frequently leads to erroneous comparisons between corporate debt and either government debt or personal debt.²⁴

24. An exchange between Professor Michael Bradley and Senator William Proxmire during a hearing on leveraged takeovers illustrates this point:

Senator Proxmire: . . . [O]ur National Government is deeper in debt than ever. We have a trade deficit that’s enormous. We are very dependent on foreign borrowing. And now our corporations seem to be getting more and more highly leveraged, which is another way of saying more and more deeply in debt.

Although we will examine ways in which debt-equity ratios might affect cash flows, it is important at this juncture to recognize that a logical distinction exists between the level of a firm's cash flows and the division of claims against those cash flows. To illustrate this, consider the example contained in Table 2.

The value of a firm, typically defined as the discounted value of the firm's cash flow, equals the value of the claims against the cash flow, namely the value of the debt claims plus the value of the equity claims. In this example, two firms initially have an identical value of \$1000. Firm A is highly leveraged—the value of its debt obligations is \$900 and the value of its equity is \$100. Firm B has a “clean” balance sheet—it has no debt obligations and the value of its equity is \$1000.

TABLE 2: EFFECT OF CHANGE IN DISCOUNTED VALUE OF CASH FLOWS ON VALUE OF DEBT AND EQUITY

Discounted Value of Cash Flows (i.e., Value of Firm)	\$1000	\$800
<i>Firm A—Highly Leveraged</i>		
Value of Debt	900	800
Value of Equity	100	0
<i>Firm B—No Leverage</i>		
Value of Debt	0	0
Value of Equity	1000	800

Now suppose that both firms suffer an unanticipated \$200 decline in expected cash flows, arising from an unanticipated decline in demand or an unanticipated increase in input prices. If the costs of reorganizing financial claims was zero, then both firms would be revalued at \$800.

Mr. Bradley: Well, I think we have to make a distinction between borrowing or debt at the corporate level versus the Government or a personal level. When you think of debt or equity in a corporate capital structure, the only distinction between the two is which group has the safer part of the earnings produced by the firm. In other words, bondholders just stand in line before equity holders. And what we're doing is in a sense piecing out the risks of the corporation between bondholders and equity holders.

It's not like my personal wealth where I have my personal equity and then I borrow somebody else's money. A corporation exists for the production of goods and services and it gets funds from both bondholders and stockholders. Stockholders and bondholders both lend money to the corporation. What they lend money for is simply a promise for a future payment. Bondholders have a promise of safer dollars, but nevertheless, the corporation, if we can use that legal entity, is borrowing both from equity holders and bondholders. So, from that perspective, I don't think it has the same concern for the corporation it would for you or me.

Because debtholders have a prior claim to \$900 of Firm A's cash flows, equity holders in Firm A sustain a wealth loss of \$100—the value of their claim declines from \$100 to \$0. Since the value of Firm A has fallen below the value of its debt obligations, Firm A is “in bankruptcy.” Its debtholders now own a claim, in effect an equity claim, on the full value of the firm, but they sustain a \$100 wealth loss as the value of their claim declines from \$900 to \$800. Thus, debtholders and stockholders share equally the decline in Firm A's value.

Contrast the outcome in Firm A with the outcome in Firm B. Since Firm B has no outstanding debt, the stockholders sustain the entire \$200 decline in firm value. The value of their claim declines from \$1000 to \$800. Although Firm B avoids bankruptcy, its stockholders sustain a wealth loss equal to the combined wealth loss sustained by debtholders and stockholders in Firm A.

This example illustrates that the loss of value often associated with bankruptcy derives not necessarily from the fact that a firm is bankrupt, but from the loss in the value of the cash flow generated by a firm's assets.²⁵ Regardless of a firm's capital structure, a reduction in the firm's cash flows creates wealth losses for anyone having a claim to the cash flows.

Once one recognizes that loss of value is related only to the level of a firm's cash flow and not the claims against that cash flow, the focus must shift to the effects of a leveraged takeover on a firm's cash flow. Either explicitly or implicitly, critics of leveraged takeovers must assume that, beyond some debt-equity level, additional leverage reduces a firm's expected cash flow. Accordingly, we turn now to a discussion of the relationship between a firm's capital structure and its value.

In their seminal paper, Modigliani and Miller developed an analytical framework for examining how the mix of debt and equity claims can

25. A popular finance textbook develops this point by critiquing a common perception about bankruptcy:

Bankruptcies are [often] thought of as corporate funerals. The mourners (creditors and especially stockholders) look at their firm's present sad state. They think of how valuable their securities used to be and how little is left. Moreover, they think of the lost value as a cost of bankruptcy. That is the mistake. The decline in the value of assets is what the mourning is really about. That has no necessary connection with financing. The bankruptcy is merely a legal mechanism for allowing creditors to take over when the decline in value of assets triggers a default.

Bankruptcy is not the *cause* of the decline in value. It is the result.

affect firm value.²⁶ First, the tax system favors debt financing over equity financing. The firm may deduct interest expenses, but not dividends and retained earnings. Because the federal government effectively pays a percentage of a firm's interest expense (the percentage being equal to the firm's nominal corporate tax rate), the firm's cash flow increases by that amount. All else being equal, this tax bias creates a direct relationship between a firm's debt-equity ratio and its value. Absent some countervailing effect on cash flow, the tax bias would favor firms financed exclusively with debt.

Modigliani and Miller suggest, however, that the costs associated with bankruptcy—i.e., the costs associated with reorganizing financial claims when firm value falls below the value of its debt obligations—counteract the tax bias. In the example above, we assumed a costless bankruptcy process. Relaxing that assumption, it becomes evident that a relationship exists between debt-equity ratios and expected bankruptcy costs. The likelihood of bankruptcy (i.e., the likelihood that a firm's value falls below the value of its debt obligations) varies directly with debt-equity ratios. Because expected bankruptcy costs reduce expected cash flows, then, beyond some debt-equity ratio, an inverse relationship exists between a firm's debt-equity ratio and its value.

Bankruptcy entails two types of costs: the costs of bankruptcy *per se* and the indirect costs associated with the effect that impending bankruptcy may have on the incentives of stockholders to redistribute wealth from debtholders in ways that reduce firm value. The *per se* costs include the administrative costs of bankruptcy (e.g., legal fees) and the indirect costs of impaired governance of bankrupt firms. In a sample of eleven railroad bankruptcies, Warner found that the direct costs of bankruptcy proceedings amounted to approximately 5.3% of pre-bankruptcy firm value.²⁷ Assuming that Warner's data is representative of direct bankruptcy costs generally, expected direct bankruptcy costs—the probability of bankruptcy times the direct costs—are likely to be small.

Bankruptcy *per se* also imposes indirect costs. In bankruptcy proceedings, the adjudication process may retard efficient operation of the firm. The disparate claims of creditors often generate conflicts between creditors concerning both the level and the riskiness of a firm's investments. These conflicts, along with the creditors' power to vote on reorganization

26. Modigliani & Miller, *The Cost of Capital, Corporation Finance, and the Theory of Investment*, 48 AM. ECON. REV. 261 (1958).

27. Warner, *Bankruptcy Costs: Some Evidence*, 32 J. FIN. 337 (1977).

plans, raise the cost of corporate decision-making and may result in foregone opportunities for profitable investments. These foregone investment opportunities represent a real cost of bankruptcy, albeit a one that is difficult to quantify.

In addition to the costs of bankruptcy, there are also costs associated with conflicting interests between stockholders and bondholders. For example, stockholders are likely to prefer that a firm invest in riskier projects, sometimes even if they are negative return projects, because such projects increase the value of the firm's equity at the expense of bondholders.²⁸ Recognizing this danger, debtholders may wish to negotiate covenants which restrict the behavior of management to redistribute wealth in this manner.²⁹ In addition, debtholders may wish to restrict the firm's ability to alter dividend policy, sell assets, and adopt other policies which potentially raise shareholder wealth while reducing debtholders' wealth. However, since it is costly to negotiate and enforce these covenants, this potential appropriation of wealth by stockholders becomes another cost of leverage.

Another potential conflict between bondholders and shareholders arises when the firm's ability (or willingness) to repay the principal amount of the debt depends in part on the profitability of future investment opportunities.³⁰ If the debt matures *after* shareholders discover the value of the investment opportunities, the shareholders will only invest in projects whose values exceed the sum of the cost of project and the face value of the maturing debt. Thus, shareholders will forego some *profitable* projects and default on the debt if the cash flows from such projects are insufficient to retire the debt.³¹ Possible resolutions of this conflict are shortening the effective maturity of the debt by including call or sinking fund provisions in the indenture, or allowing renegotiation of the debt contracts once the value of investment opportunities is revealed. However, it is costly to include such provisions in the bond contract.

Using the Modigliani-Miller framework, scholars have examined other factors (e.g., personal taxes) that might affect the relationship between capital structure and firm value.³² Although little is known empirically

28. For an illustration of this phenomenon see *infra* Appendix A. See also Galai and Masulis, *The Option Pricing Model and the Risk Factor of Stock*, 3 J. FIN. ECON. 53 (1976).

29. Smith & Warner, *On Financial Contracting: An Analysis of Bond Covenants*, 7 J. FIN. ECON. 117 (1970).

30. Myers, *Determinants of Corporate Borrowing*, 2 J. FIN. ECON. 147 (1977).

31. For an illustration of this phenomenon, see *infra* Appendix B.

32. See, e.g., Miller, *Debt and Taxes*, 32 J. FIN. 261 (1977).

about the relationship between capital structure and firm value, systematic differences in average debt-equity ratios across industries suggest cross-sectional variation in optimal debt-equity ratios.³³ These differences presumably arise from differing tax advantages and expected bankruptcy costs associated with leverage across industries.

For present purposes, two conclusions should be drawn from the foregoing discussion of the economics of corporate leverage. First, although there are costs associated with leverage, namely expected bankruptcy costs, these costs vary across firms and industries. Secondly, these costs are unlike the costs frequently portrayed in the public controversy over leveraged takeover. Critics of leveraged takeovers often confuse changes in cash flow that induce bankruptcy with the costs of leverage itself.

III. ANALYSIS OF LEVERAGED TAKEOVERS

A. "Paper" Profits or Real Efficiency Gains?

During Unocal's takeover battle with Mesa, Claude Brinegar, senior vice-president at Unocal, offered this criticism of Mesa's takeover bid in testimony before a congressional subcommittee:

There should be a real economic returns to the Nation when you make a transaction. It should not be a return simply on converting equity to debt. Unocal does not go out buying Mesas. Unocal tries to use its cash flow and investment ability to find resources that are good for the Nation. We have no record of taking over companies in a hostile fashion. If we looked to acquisition, it would be because we could bring something to it in terms of asset management and in terms of utilizing resources for productive good. I think mergers and acquisitions should be focused on the question of whether or not there is good economic reasons for them, not whether there is money available for them.³⁴

In a different congressional hearing, Nicholas F. Brady, the chairman and chief executive officer at Dillon, Read & Company, Unocal's investment banker during the takeover battle, added that "it offends [him] to think of corporations that have been in existence for 60 or 70 years being dismembered for the sake of a few bucks in the stock market."³⁵

These statements echo the oft-repeated argument that highly leveraged

33. Bradley, Kim, & Jarrell, *On the Existence of an Optimal Capital Structure: Theory and Evidence*, 39 J. FIN. 857 (1984).

34. *Hearings on the Effect of Mergers*, *supra* note 11, at 20 (statement of Claude Brinegar).

35. *Tax Treatment of Hostile Takeover: Hearings Before the Subcomm. on Taxation and Debt Management of the Comm. on Finance*, 99th Cong., 1st Sess., 111 (1985).

takeovers are "financial transactions for the profit of takeover entrepreneurs" which "do not add to national wealth," but "merely rearrange ownership interests by substituting lenders for shareholders and shift risk from equity owners to creditors."³⁶ These arguments fail to recognize, however, that regardless of how a bidding firm finances a takeover, it must increase the discounted cash flow of the target firm in order to earn positive returns on its acquisitions. To illustrate this point, we consider the Mesa-Unocal case.

In order to pay a substantial cash premium in its initial tender offer for Unocal's common stock, Mesa borrowed \$3.8 billion. Furthermore, it expected to issue an additional \$4.7 billion in subordinated debt and preferred stock in order to acquire the remaining 49.9% of Unocal's stock. All told, Mesa was prepared to issue an \$8.5 billion claim on the post-merger cash flow of the combined companies. Based on the \$5.5 billion market value of Unocal's common stock at the end of 1984,³⁷ Mesa's takeover bid would have increased the value of claims on Unocal's cash flow by approximately three billion dollars, or 54.4% over the value of these claims at the end of 1984.

Upon successfully completing the takeover bid, Mesa would have become Unocal's sole stockholder. Mesa's claim, then, would have become a junior claim vis-à-vis the newly issued debt. In order to earn a positive return on this acquisition, Mesa would have had to increase Unocal's discounted cash flows by more than three billion dollars, the premium that it offered to pay for Unocal's stock. If Mesa was unable to raise Unocal's cash flows by this amount, it would have had to divert cash flow from its pre-merger operations, thereby reducing the value of its equity and suffering a loss from this acquisition. Clearly, then, Mesa expected to increase Unocal's discounted cash flow upon successful completion of the merger. The market concurred with Mesa's expectation. As previously reported, the market positively revalued Mesa's common stock during its offer for Unocal.

How did Mesa expect to increase Unocal's cash flow? In a supplement to its Schedule 14D filing with the SEC,³⁸ Mesa addressed this question

36. *Hearings on the Effect of Mergers*, *supra* note 11, at 7 (statement of Martin Lipton).

37. The market value of Unocal's common stock at the end of 1984 was approximately \$6.4 billion. *See supra* note 17. Prior to its tender offer for Unocal, Mesa held a 13.6% stake in Unocal common stock. Thus, the market value of Unocal's outstanding shares exclusive of those holdings totaled \$5.5 billion ($0.864 \times \6.4 billion).

38. Mesa's Schedule 14D filing with the SEC stated:

The Purchasers believe that funds to pay interest and dividends on, as well as to repay and

stating that it intended to service the newly created debt by reducing Unocal's capital expenditures and possibly selling some of Unocal's assets. In short, Mesa intended to adopt the very strategies that critics assert threaten the long-term competitiveness of U.S. corporations. As one critic stated, "[w]e are mortgaging the future of American industry to satisfy the greedy raiders [I]f heavy debt loads are imposed by an artificial corporate environment created by raiders who care little for what went before, or what remains after, American industry's competitive strength will be further undermined."³⁹

The argument that a bidder in a highly leveraged takeover desires short-term gratification and disdains long-term investments ignores reality. As a controlling stockholder in the surviving firm, a successful bidder owns only a residual claim on the target firm's discounted cash flow. Foregoing *profitable* (i.e., positive return) long-term investments to service takeover-related debt *diminishes* the target firm's cash flow and imposes losses on the bidder.

If, on the other hand, a target firm has invested in *unprofitable* (i.e., negative return) projects prior to the takeover, then abandonment of those projects raises the discounted value of the firm's cash flow and provides the bidder with the opportunity to realize a positive return from its acquisition. For example, suppose that XYZ Corporation invests in several negative-return projects and that the market accordingly prices its equity at \$10 per share. Assume further that if XYZ abandons these projects and distributes the expenditures intended for these projects to shareholders, its stock price would be \$15 per share. A bidder who de-

redeem, all of the securities and other obligations referred to above can be provided by operations and working capital of the Company. . . . The Purchasers have no present intent to sell any asset sales would be necessary to make the required payments with respect to the total amount of securities and other obligations that would be issued if all outstanding shares were acquired as described above. If the future financial performance of the Company after the Merger is not sufficient to make required payments on the securities and other obligations, the Company might sell assets. . . . In general, estimated future capital expenditures, including expenditures for foreign and domestic exploration for oil and natural gas, were reduced significantly in the forecasts from historical levels. . . . The Purchasers expect that capital expenditures after the Offer and Merger would be reduced from historical levels, in part to maximize cash flow available to service the securities and other obligations to be issued to provide funds to finance the Offer and in the Merger. However, . . . the Purchasers . . . would expect to continue to make capital investments in projects which met appropriate rate of return criteria.

39. *Media Mergers and Takeovers: The FCC and the Public Interest: Hearings Before the Subcomm. on Telecommunications, Consumer Protection, and Finance of the Comm. on Energy and Commerce*, 99th Cong., 1st Sess. 78, 79 (1985) (statement of Thornton Bradshaw, former chairman of RCA Corp.).

fects XYZ's unprofitable investment policy could earn a positive return by acquiring XYZ for a price of less than \$15 per share and then terminating its negative-return projects. If the bidder finances the takeover exclusively with debt, it could service the debt with the funds that otherwise would finance the negative-return projects.

Mesa's bid for Unocal displays the principles evident in this example and in a theory of takeover motivation recently developed by Jensen.⁴⁰ Economists and legal scholars have long recognized a potential conflict between managerial incentives and shareholder interests in publicly traded companies, which are characterized by diffuse ownership structures and relatively small shareholdings by corporate managers.⁴¹ This potential conflict arises because managers in these firms do not bear the full wealth consequences of their decisions. Their decisions affect the value of all outstanding equity, yet they own relatively little equity. If the "outside" (i.e., non-management) equity is held diffusely, "incomplete" monitoring of managers will result because no individual shareholder can recoup the full value costly monitoring yields.

Jensen argues that this conflict is especially severe in firms that generate significant free cash flow, i.e., "cash flow in excess of that required to fund all projects that have positive net present values when discounted at the relevant cost of capital."⁴² Firms with low growth prospects but strong earning ability generally have substantial free cash flow. Low growth prospects, however, limit opportunities to reinvest that cash flow profitably in a firm's current lines of business. If the firm's management specializes in its current lines of business, then it is unprofitable to invest the cash flow in acquisition of new lines of business. Value-maximization dictates distribution of the cash flow to the shareholders.

Jensen maintains that managers often prefer to retain free cash flow to expand their firm's size, even if this expansion diminishes shareholders' wealth. From an efficiency perspective, the problem thus becomes "how to motivate managers to disgorge the cash rather than investing it at below the cost of capital or wasting it on organizational inefficiencies."⁴³ Hostile takeovers represent one method by which shareholders can mitigate this conflict. As Professor Manne has argued, a manager who does

40. Jensen, *Agency and Costs of Free Cash Flow, Corporate Finance and Takeovers*, 76 AM. ECON. REV. 323 (1986).

41. See, e.g., A. BERLE AND G. MEANS, *THE MODERN CORPORATION AND PRIVATE PROPERTY* (1933).

42. Jensen, *supra* note 40, at 323.

43. *Id.*

not profitably deploy free cash flow will find his firm's stock price depressed, thereby raising the likelihood of a hostile takeover.⁴⁴

Since the early 1980's, the oil industry has been characterized by substantial free cash flow.⁴⁵ By the late 1970's, the leveling (and subsequent decline) of oil prices, high interest rates, and increased costs of drilling and exploration caused growth prospects in the industry to decline. Yet, oil companies still had considerable earning ability due to a significant divergence between the price of crude oil and the average cost of extracting proven oil reserves. Rather than distribute the free cash flow to shareholders via stock repurchases or dividend increases, many oil companies continued to reinvest free cash flow into negative-return exploration projects. Evidence shows that, on average, the market negatively revalued the equity of oil companies upon the announcement of new exploration programs during the late 1970's.⁴⁶

This evidence provides a rationale for Mesa's offer for Unocal. By diverting free cash flow from investment in negative-return projects to service the debt used to finance the substantial premiums offered to Unocal's shareholders, Mesa's takeover would have disgorged Unocal's free cash flow. In effect, the offered premium represented a lower bound on the value Mesa expected to create by terminating Unocal's unprofitable investments and distributing the free cash flow directly to Unocal's security holders.

Abstracting from the Mesa-Unocal case, a leveraged takeover does not create "paper" profits for a bidder financed by diminution in the value of the target firm's assets. In order to earn a positive return on its acquisition, a bidder must raise the discounted cash flow of the target firm by more than the corresponding premium, regardless of how it finances the acquisition. Because the newly issued debt has a claim on cash flow that is senior to the bidder's equity position, failure to raise cash flow to service takeover-related debt diminishes the value of the bidder's claim. The post-takeover restructuring of the target firm, which typically accompanies a successful leveraged takeover, does not destroy economic wealth. Rather, a takeover redeploys the target firm's assets to higher valued uses, thereby *creating* economic wealth.⁴⁷

44. See Manne, *Managers and the Market for Corporate Control*, 73 J. POL. ECON. 110 (1965).

45. See Jensen, *supra* note 40, at 326-27.

46. McConnell & Muscarella, *Corporate Capital Expenditure Decisions and the Market Value of the Firm*, (forthcoming J. FIN. ECON.).

47. A bidding firm could raise the discounted value of a firm's cash flow without improving social efficiency in two situations: 1) if reduced tax liability of the combined firms financed the

B. Two-Tier Leveraged Takeovers

Many critics of leveraged takeovers consider leveraged *two-tier* takeovers especially abusive. Critics assert that in a highly leveraged two-tier offer, the subordinated status of the securities issued in the second tier creates a great disparity between the value of the first-tier offer and the value of the second-tier offer. This disparity not only treats target shareholders inequitably, critics argue, but it also creates a “prisoner’s dilemma”⁴⁸ among target shareholders, which may facilitate acquisition of the target firm.

To illustrate the “prisoner’s dilemma,” consider the following example. Assume that Firm A has 100 shares of outstanding common stock trading at a price of \$40 per share. Hence, the market value of Firm A is \$4000. Now suppose that a bidder makes the following two-tier bid for Firm A: \$50 per share for the first fifty-one shares (with proration the Williams Act requires⁴⁹) and \$20 per share for the remaining forty-nine shares. The value of this offer is \$3530 [$(\$50 \times 51) + (\$20 \times 49)$]. Because the firm’s market value exceeds the value of this offer, it is in the collective interest of shareholders to reject this offer. If shareholders cannot coordinate their behavior at an efficient cost, this offer might nevertheless succeed. Each individual shareholder, preferring the \$50 per share first-tier offer to his present \$40 share, has an incentive to tender into the first-tier, hoping that his shares are not prorated (i.e., that shareholders tender fifty-one shares or fewer). If all shareholders tender, however, the prorated value of the offer is \$35.30 per share ($\$3530 \div 100$). Each shareholder is worse off than before the offer. In short, the disparity between the value of the offer in the two tiers allows the bidder to acquire the target for a price below its “true” market value.

This argument ignores the role played by competing bids. If one bidder attempted to acquire a \$4000 firm for \$3530 by constructing the offer described above, other bidders would find it in their interest to submit higher offers until the blended value of the winning offer at least equalled

tender offer premium; or 2) if the takeover would facilitate anti-competitive pricing of the combined firms’ products. Neither of these cases, however, provides an argument against leveraged takeovers *per se*. To the extent that tax motivations for tender offers are considered socially wasteful, the “problem” lies in the tax inducements to merge, a tax issue. To the extent that a desire for monopoly profits motivates a leveraged takeover, this is an antitrust concern, not a concern about leveraged takeovers generally.

48. For a discussion of the “prisoner’s dilemma” problem, see P. ARANSON, *AMERICAN GOVERNMENT: STRATEGY AND CHOICE* 56 (1981).

49. See 15 U.S.C. § 78n(d)(6) (1982).

the pre-offer market value of the target firm. A competitive market for corporate control, therefore, precludes bidders from using these offers simply to obtain target firms at "below-market" values.

Empirical evidence supports this conclusion. An SEC study which found that on average, shareholders in the second-tier of two-tier takeovers receive premiums of 44.8% over the pre-offer price of target firms.⁵⁰ Although this average premium falls short of the average first-tier premium of 62.8%, it nonetheless represents a significant increase in shareholders' wealth. The study also reported that the average blended premium associated with two-tier takeovers was 54.5%. The data in the Mesa-Unocal transaction reveal that Mesa's second-tier offer represented a premium over Unocal's pre-offer price. On the day Mesa announced its tender offer, evidence suggests that the market valued Mesa's second-tier offer at \$45.48 per share—a premium of 31.3% over Unocal's pre-offer stock price.⁵¹

50. OFFICE OF THE CHIEF ECONOMIST, SECURITIES AND EXCHANGE COMMISSION, *THE ECONOMICS OF ANY-OR-ALL, PARTIAL, AND TWO-TIER TENDER OFFERS*, (1985); *See also* OFFICE OF THE CHIEF ECONOMIST, SECURITIES AND EXCHANGE COMMISSION, *THE ECONOMICS OF PARTIAL AND TWO-TIER TENDER OFFERS*, reprinted in [1984 Transfer Binder] Fed. Sec. L. Rep. (June 21, 1984).

51. Recall that Mesa's offer consisted of \$54 in cash per share for 36.5% of the shares, which would give Mesa a 50.1% stake, and \$54 in subordinated securities for the remaining 49.9% of the shares. On the day Mesa announced its offer, Unocal's stock price closed at \$49.75 per share, where, presumably:

$$\$49.75 = (p_1 \times V_1) + (p_2 \times V_2)$$

where

p_1 = probability that Mesa's offer is successful;

V_1 = value of Mesa's offer;

p_2 = probability that Mesa's offer is unsuccessful;

V_2 = value of Unocal's stock if Mesa's offer is unsuccessful;

Unocal's closing stock price on the day of Mesa's tender offer equalled a weighted sum of the value of Mesa's offer plus the value of Unocal's stock if the offer failed, with the weights being the probability of the two respective events. Assume that $V_2 < V_1$, that is, the value of Unocal would be lower if Mesa's offer failed than if it succeeded. The *minimum* value of Mesa's second-tier offer can then be calculated by assuming that $p_1 = 1$, i.e., that there was complete certainty that Mesa's offer would be successful. This assumption is made only for convenience; the lower p_1 is, the greater V_1 is, holding Unocal's stock price constant at \$49.75 per share. Hence, this assumption biases *against* finding a high value of the second-tier compensation. If $p_1 = 1$ then:

$$\$49.75 = V_1 = (0.501 \times \$54) + (0.499 \times X)$$

where X is the value of the second-tier compensation. In other words, the value of Mesa's offer equalled \$54 times 0.501, the percentage of shares it was seeking, plus X times 0.499, the remaining percentage of shares. Rearranging terms,

$$X = \frac{49.675 - (0.501 \times \$54)}{0.499} = \frac{\$49.75 - 27.054}{0.499} = \$45.48$$

C. Bondholders' Wealth in Leveraged Takeovers

Critics of leveraged takeovers also argue that bondholders and preferred stockholders of the target firm, and possibly the bidding firm, suffer significant wealth losses in these transactions. Because the value of the firm consists of the sum of the value of all claims against the firm's cash flows (i.e., the value of the bonds, preferred stock, and common stock), leveraged takeovers may actually diminish the value of target firms, if the losses to bondholders and preferred stockholders exceed the gains to common stockholders in these transactions. Morey McDaniel argues that corporate directors should have a fiduciary duty to protect bondholders from wealth expropriation associated with leverage-increasing transactions, including leveraged takeovers.⁵²

Although empirical evidence on the effect of leveraged takeovers on the wealth of bondholders and preferred stockholders is inconclusive,⁵³ the "bondholder redistribution" argument, in our view, does not justify regulation of leveraged takeovers. Bondholders (and presumably, preferred stockholders) can protect themselves with negative pledge clauses, restricted sale-leaseback agreements, and other covenants restricting issuance of secured debt. Bondholders are likely to pay a price for this protection in the form of lower coupon rates than they would otherwise receive. Bondholders who forego this protection presumably receive a premium in exchange for bearing some increased risk of wealth expropriation.⁵⁴ Unless transaction costs impair the efficiency of the market for bondholder protection, protecting bondholders provides no justification for a public policy remedy in leveraged takeovers.

Coase's proposition⁵⁵ also suggests that, with low transaction costs,

52. See McDaniel, *Bondholders and Corporate Governance*, 41 *BUS. LAW.* 414 (1986).

53. Masulis, *The Effects of Capital Structure Change on Security Prices: A Study of Exchange Offers*, 8 *J. FIN. ECON.* 139 (1980), reports empirical evidence that supports the argument that leverage-increasing transactions diminish bondholders' wealth. Masulis found that when firms announce an offer to exchange debt for their outstanding common stock, the value of the firm's outstanding non-convertible bonds declines. Two studies were unable to find systematic diminution in bond values upon the announcement of tender offers and leveraged buyouts. See D. Dennis & J. McConnell, *Corporate Mergers and Security Returns*, 16 *J. FIN. ECON.* 143 (1986); Lehn & Poulsen, *Leveraged Buyouts: Wealth Created or Wealth Redistributed?* in *PUBLIC POLICY TOWARD CORPORATE TAKEOVERS* (M. Weidenbaum ed. forthcoming 1987).

54. William Gross, managing director of Pacific Investment Management Co., commenting on the demand for takeover-related bond covenants, stated that "[i]ndustrial corporations are finally becoming aware that their bonds aren't attractive without protections for bondholders against takeover." See *"Poison Put" Bonds are Latest Weapon on Companies' Anti-Takeover Strategy*, *Wall St. J.*, Feb. 13, 1986, at 5, cols. 1, 3.

55. Coase, *The Problem of Social Cost*, 3 *J. LAW. & ECON.* 1 (1960).

fiduciary protection of bondholders in leveraged takeovers would affect only the distribution of wealth associated with these takeovers; it would have virtually no effect on the dollar volume of leveraged takeovers.⁵⁶ Coase theorized that when transaction costs are low, the allocation of resources will be efficient and invariant with respect to the initial assignment of property rights.⁵⁷ In this context, suppose initially that the legal system protects bondholders' wealth in leveraged takeovers. If a proposed leveraged takeover would create \$100 in shareholder gains and \$5 in bondholder losses, then, assuming low transaction costs, shareholders would accept the offer, pay bondholders \$5, and receive \$95 in net gains. If the legal system provided no protection, then, of course, shareholders would accept the offer and keep the full \$100 in gains. In this example, the leveraged takeover succeeds regardless of the rights afforded to bondholders.

Now suppose that bondholders have a legal right to protection in leveraged takeovers and that a proposed leveraged takeover would create \$50 in shareholder gains and \$75 in bondholder losses. This transaction would not succeed because shareholders would refuse to compensate bondholders by more than \$50 and bondholders would consent for no less than \$75. Even assuming low transaction costs and no legal protection for bondholders the offer would fail. In this case, bondholders would find it in their interest to compensate shareholders by an amount between \$50-\$75 in exchange for shareholder rejection of the leveraged takeover. By paying less than \$75 to avert a \$75 loss, bondholders would recognize an increase in wealth. By accepting an offer exceeding the takeover price, shareholders would be made better off as well. The offer would fail despite the bondholders' right to protection. Thus, assuming low transaction costs, only leveraged takeovers that raise firm value (i.e., the summed value of the debt claims and the equity claims) will succeed.

As a practical matter, in most leveraged takeovers bondholders' losses are likely to be small vis-à-vis stockholders' gains. If critics of leveraged takeovers were correct, one would expect bondholders to have sustained especially high losses as a result of Mesa's bid for Unocal because Mesa financed the bid exclusively with debt. The evidence suggests, however, that although Unocal's bondholders did suffer wealth losses associated with Mesa's offer, these losses were small compared to stockholders'

56. A similar discussion appears in N. Beare, *Leveraged Buyouts: Are Shareholders' Gains Merely Bondholder Losses?*, (November 3, 1986) (unpublished manuscript).

57. This assumes that there are no wealth-induced effects on Consumer demand.

gains. To offset the shareholder gains associated with the takeover, the combined value of Unocal's debt and Mesa's debt would have had to decline by approximately 63.8%.⁵⁸ The value of two Unocal non-convertible bonds, with a combined face value of \$303 million and maturing in 1998 and 2002, declined by only 4.2% and 3% respectively.⁵⁹ If these losses are representative of losses to other Unocal and Mesa debtholders, debtholders in the two firms would have lost approximately \$170 million. Stockholders' gains, by comparison, would have amounted to \$3 billion. Hence, even if stockholders had restored the debtholders' losses in this transaction, the stockholders' net gain would have exceeded \$2.8 billion.

In summary, empirical evidence supports the conclusion that in some leveraged takeovers bondholders' losses partially offset stockholders' gains. Whether or not this phenomenon is a central tendency in leveraged takeovers awaits additional empirical investigation. Conceptually, however, the issue of bondholder protection implicates the distributional effects of leveraged takeovers rather than *a priori* "efficiency" concerns.

IV. CONCLUSION

The recent controversy over corporate takeovers has spawned several criticisms of leveraged takeovers. In our view, however, none of these criticisms advances a convincing economic rationale for further regulation of leveraged takeovers. Regardless of how a bidder finances a takeover, these transactions generally promote more efficient resource allocation. Moreover, the possibility of competing bids precludes leveraged two-tier tender offers, and contrary to common perception, empirical evidence indicates that critics exaggerate the disparity between first-tier premiums and second-tier premiums in these offers. Finally, Coase's analysis of property rights suggests that assigning bondholders a legal right to protection in leveraged takeovers would affect the distribution, but not the magnitude, of wealth gains in these transactions.

58. The combined value of Unocal's stock and Mesa's stock increased by approximately \$3 billion during Mesa's attempted takeover. The combined book value of Unocal's and Mesa's debt before the offer was approximately \$4.7 billion.

59. The data on these bond prices came from monthly editions of MOODY'S BOND RECORD, (Jan. 1985-June 1985).

APPENDIX A

Suppose that Firm A and Firm B each have a value of \$1000. As in the example above, Firm A has \$900 of outstanding debt and \$100 of outstanding equity, and Firm B has outstanding debt of \$0 and outstanding equity of \$1000. Both firms must choose between two investment opportunities that require identical outlays of \$300. Option 1 will generate \$200 of discounted cash flow with probability of 0.5 and \$450 of discounted cash flow with probability of 0.5. Hence, the expected discounted cash flow generated by Option 1 is \$325 $[(0.5 \times \$200) + (0.5 \times \$450)]$. Option 2 will generate \$0 of discounted cash flow with probability of 0.9 and \$2000 of discounted cash flow with probability of 0.1. Hence, the expected discounted cash flow generated by Option 2 is \$200 $[(0.9 \times \$0) + (0.1 \times \$2000)]$. Because both projects require a \$300 outlay, Option 1 generates \$25 in expected returns, while Option 2 generates negative expected returns of \$100. Option 2 is also a riskier investment project than Option 1—the standard deviation of returns for Option 2 is \$600 while the standard deviation in returns for Option 1 is only \$125.

The data in Table A1 demonstrate the conflict that exists between stockholders and bondholders concerning the riskiness of investment projects in highly leveraged firms. Although Option 1 raises firm value to \$1025 and Option 2 reduces firm value to \$900, shareholders in Firm A prefer Option 2, while bondholders in Firm A prefer the value-maximizing option, Option 1. The disparity in their preferences derives from an asymmetry in the sharing of gains and losses. Because Firm A is highly leveraged, shareholders bear relatively little downside risk, namely the value of their pre-investment equity claim. Hence, if the investment project fails, bondholders bear a disproportionate share of the losses. Stockholders, however, capture all of the gains if the investment project succeeds, because they own the residual claim. The expected payoff to stockholders of Option 1 is \$125 and the expected payoff of Option 2 is \$180. If stockholders are risk neutral, that is, if their sole objective is to maximize expected payoffs, then stockholders in Firm A prefer the riskier option, Option 2, even though it reduces the firm's value. Contrast this outcome with the outcome in Firm B, the firm with no outstanding debt. Because stockholders in Firm B bear all of the wealth gains or losses associated with investment projects, they prefer the project with the highest expected payoff, Option 1.

TABLE A1

<u>Firm A</u>	<u>Pre-Investment</u>	<u>Option 1's Payoffs</u>		<u>Expected Values</u>
		<u>\$200</u> <u>(p=0.5)</u>	<u>\$450</u> <u>(p=0.5)</u>	
Value of Debt	\$ 900	\$900	\$ 900	\$ 900
Value of Equity	<u>100</u>	<u>0</u>	<u>250</u>	<u>125</u>
Total Firm Value	<u>1000</u>	<u>900</u>	<u>1150</u>	<u>1025</u>
<u>Firm B</u>				
Value of Debt	0	0	0	0
Value of Equity	<u>1000</u>	<u>900</u>	<u>1050</u>	<u>1025</u>
Total Firm Value	\$1000	\$900	\$1050	\$1025
<u>Firm A</u>	<u>Pre-Investment</u>	<u>Option 2's Payoffs</u>		<u>Expected Values</u>
		<u>\$0</u> <u>(p=0.9)</u>	<u>\$2000</u> <u>(p=0.1)</u>	
Value of Debt	\$ 900	\$700	\$ 900	\$720
Value of Equity	<u>100</u>	<u>0</u>	<u>1800</u>	<u>180</u>
Total Firm Value	<u>1000</u>	<u>700</u>	<u>2700</u>	<u>900</u>
<u>Firm B</u>				
Value of Debt	0	0	0	0
Value of Equity	<u>1000</u>	<u>700</u>	<u>2700</u>	<u>900</u>
Total Firm Value	\$1000	\$700	\$2700	\$900

In short, this example illustrates that stockholders in highly leveraged firms are likely to prefer riskier projects than bondholders, even if investment in those projects reduces firm value. Because firms approaching bankruptcy are firms in which the value of debt obligations is large relative to the value of the equity claims, this phenomenon may be quite pronounced for firms in financial distress.

APPENDIX B

Suppose that KDW Corporation has just incorporated to develop a revolutionary genetic engineering process which produces a drug that cures cancer.* The actual dollar returns from the new venture are uncertain pending approval of the drug by the Food and Drug Administration. If the firm decides to undertake the venture after getting the FDA evaluation, the project will require a \$4000 outlay. Keep in mind that the firm has the *option* to undertake the venture, *depending on the FDA evaluation*.

The shareholders would like to borrow against the prospective project, and have written a debt contract promising to pay \$3000 to the lender. The repayment of the \$3000 is due *after* the decision regarding whether to proceed with the genetic engineering venture. The firm will use the \$3000 to pay an immediate dividend to shareholders.

TABLE B1
ILLUSTRATION OF THE INCENTIVE OF SHAREHOLDERS TO
FOREGO PROFITABLE PROJECTS WHEN GROWTH
OPTIONS ARE FINANCED WITH DEBT

FDA Finding (State)	Will Firm Make Investment?			\$3000 Debt
	Cash Flow	Profit**	All Equity	
1. Process approved	\$10,000	\$6,000	yes	yes
2. Process approved with modification	6,000	2,000	yes	no
3. Process rejected	2,000	(2,000)	no	no

Table B1 shows the one-time cash flows that the firm receives from the project under three possible FDA findings. If the process is approved, (State 1), the firm, and thus the shareholders, receive a cash flow of \$10,000. The project will be profitable because the cash flow less the initial outlay ($\$10,000 - \$4000 = \$6000$) is positive. If the FDA gives approval subject to modification of the process, (State 2), the project will yield a smaller profit of only \$2000. If FDA disapproves the process, (State3), the firm will suffer a \$2000 loss. Given that the shareholders can choose whether to undertake the project, it appears that they would

* This illustration is based on an example developed by Professor Ronald E. Shrieves of The University of Tennessee, Knoxville.

** Profit equals cash flow minus initial investment.

accept the project only in state 1 or 2 and reject the project if state 3 occurs. Clearly, the shareholders will profit from the project under state 1 or 2 and will lose if they adopt the project under state 3. However, these conclusions hold only if the firm does not issue debt; that is, if the firm is financed only with equity. If the firm borrows the \$3000 mentioned above, the shareholders' decision rule changes.

Economic theory suggests that firm value is maximized when a firm adopts all profitable projects. Further, theory suggests that if perfectly competitive markets for financial capital are presumed, the decision to invest in a project should be independent of the means of financing the project. If the firm issues debt supported by growth options (future investment opportunities), perverse investment incentives may result. Namely, the firm may reject some projects which are profitable in the sense that the appropriately discounted cash flows exceed the initial outlay.

In the example developed above, the shareholders will not undertake the new project under state 2 when the firm is financed partially by debt. The shareholders will only accept projects whose cash flows exceed the sum of the initial outlay and the debt repayment. Rather than accepting all profitable projects (any project with a cash flow greater than \$4000), shareholders will only accept projects whose cash flows exceed \$4000 plus the amount of the debt repayment (\$3000) or \$7000. Shareholders would rather forego an ostensibly profitable project and default on the debt than suffer a \$2000 loss to bondholders if state 2 occurs. Thus, under state 2, KDW Corp. rejects the project, and the value of the firm is \$2000 less than it would have been had the project been adopted. Because the debt is supported by the growth opportunity, the shareholders will default if state 2 occurs.

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