The Continuing Puzzle of Secured Debt

Alan Schwartz

Recommended Citation

The Continuing Puzzle of Secured Debt

Alan Schwartz*

I. INTRODUCTION

In 1981, I wrote an article showing that no good answer had been given to the question why corporations issue some debt on a secured basis and other debt on an unsecured basis.[1] This showing had normative implications because claims that the institution of personal property security is efficient or otherwise desirable must be impeached if the actual purposes that security serves are unknown. Consequently, the law's favorable treatment of secured debt—for example, giving it first place in bankruptcy distributions—is without plausible support. My article did not advocate repealing the privileges attached to secured debt, however, because then-current knowledge also did not permit very precise predictions about repeal's effects. Rather, I claimed, the appropriate response to ignorance is enlightenment through research. This article caused a stir among lawyers but, for reasons that will become clear, not among economists. A generation of lawyers has been taught

that security is a good thing. Professor Saul Levmore[2] and Professor James White[3] produced ambitious efforts to support this belief since I wrote. This Article shows that both efforts are unsuccessful.

Part II begins by discussing the Modigliani/Miller ("MM") hypothesis that was intellectual background to my initial article. Part III shows that Professor Levmore's defense of security is unpersuasive under either of its two plausible interpretations: under one interpretation, the phenomena to which he advances security as a response can exist only by happenstance, not systematically; and under the second interpretation, it is impossible to make claims about the purposes of security because it is impossible to know how markets would function in its absence. Part IV shows that Professor White's two efforts at explaining and justifying personal property security fail because they are theoretically incomplete and generate predictions that the facts contradict. Part V briefly discusses current responses to the issues that the MM hypothesis posed, in the hope of suggesting where answers to the secured debt puzzle might be found.

II. THE MM HYPOTHESIS AND THE SECURED DEBT PUZZLE

Before 1958, finance economists thought that a corporation could increase its value in two ways—by increasing its income (without taking undue risks) and by issuing the correct mix of debt and equity securities. Therefore, the accepted wisdom was that corporate managers who wanted to maximize profits had the two distinct tasks of choosing appropriate projects for their firms and selecting "optimal capital structures." The MM hypothesis, the first version of which was published in 1958,[4] holds that under certain assumptions there is only one task to perform—to choose appropriate projects. A corporation, Modigliani and Miller proved, could not increase its value by altering its capital structure; firm value is solely a function of the size and risk of the firm's income stream. Consequently, the MM hypothesis concludes that no optimal capital structure exists; any particular structure is as good as

---

2. *See* Levmore, *Monitors and Freeriders in Commercial and Corporate Settings*, 92 YALE L.J. 49 (1982).

3. *See* White, *Efficiency Justifications for Personal Property Security*, 37 VAND. L. REV. 473 (1984).

4. *See* Modigliani & Miller, *The Cost of Capital, Corporation Finance and the Theory of Investment*, 48 AM. ECON. REV. 261 (1958); *see also* Stiglitz, *On the Irrelevance of Corporate Financial Policy*, 64 AM. ECON. REV. 851 (1974) (deriving the MM hypothesis in a formal way).

any other.

The logic underlying the MM hypothesis is simple. A corporation could increase its value by altering its capital structure only if investors valued particular capital structures and so were willing to pay premiums to firms for adopting them. For example, if investors value shares of stock in Firm X not only because those shares represent claims on Firm X's earnings but also because they reflect ownership in the particular corporate form that Firm X has adopted, then the sum the investors would pay for a share of Firm X's stock would be a function both of X's earnings *and* of this form. Under the MM assumptions, investors place a value of zero on any particular corporate form and so will pay no premium to hold shares reflecting it. Consequently, no firm can increase its value by altering its capital structure. To get the flavor of the MM hypothesis, suppose that an investor wants to hold a leveraged portfolio; that is, she wants to hold both equity and debt. The investor can achieve this goal by buying stock in a leveraged firm, one that has issued both equity (stock) and debt (bonds). But the investor also can achieve a leveraged portfolio by borrowing money and using the borrowed funds as well as her own to buy stock in an unleveraged firm. The investor then will hold debt in the form of a bank loan and equity in the form of the stock she purchased. Since our investor can make her own leverage, she will not pay a firm to create leverage for her. Thus, the leveraged firm's value cannot be increased above the value it would have had were it all equity financed. In the world of the MM hypothesis, investors can hold unleveraged portfolios, by holding stock only in all equity firms, or they can hold any portion and quality of debt they want by appropriate lending—buying a firm's bonds—or borrowing.

The assumptions that generated the MM result varied in their realism. The MM proof assumed perfect capital markets, which meant that individual investors can borrow and lend on the same terms as firms could. Modigliani and Miller also assumed that all debt is riskless—equivalently, that bankruptcy costs are zero—and that no taxes exist. The first assumption, many believe, is not far wrong[5] but the last two are plainly false. Modigliani and Miller of course knew this. And they also knew that firms act as if capital structure matters; corporate managers issue a great variety of se-

---

5. *See, e.g.*, R. BREALEY & S. MYERS, PRINCIPLES OF CORPORATE FINANCE 368-69 (2d ed. 1984) (interest rates on home mortgages approximate rates on high-grade corporate bonds; rates on individual investors' margin debt with brokers approximate rates on short-term bank loans).

curities, which they would be unlikely to do if these securities did not affect firm value. Rather, Modigliani and Miller adopted their assumptions for heuristic purposes. In an "ideal world," capital structure does not matter. The analyst's task is to relax the assumptions selectively; for example, to assume that bankruptcy costs are positive but that the other assumptions hold, and then to ask whether this new model explains what actually is observed. If it does, then, following our example, bankruptcy costs would be the key to capital structure. If not, then the analyst can try something else. Finance economists have played this game since 1958 and have made progress, but they are still far from a solution to the MM problem. No rigorous, generally accepted explanation of the optimal capital structure exists.

My article was written against this intellectual background. If no one knew why firms issue debt rather than equity, or why they issue preferred rather than common stock, it was unlikely that everyone knew why firms issue secured rather than unsecured debt, or why markets generate the mixture of secured and unsecured debt that is observed. Consequently, I made a series of assumptions much like those of MM and proved that firms cannot increase their value by issuing one form of debt rather than another. If they cannot, security should not be seen because security is costly for firms to issue; firms will not incur costs that are unmatched by corresponding gains. The logic of my proof also was simple. Secured creditors will charge lower interest rates because security reduces their risks, but unsecured creditors will raise their interest rates in response because security reduces the assets on which they can levy, and so *increases* their risks. The interest rate reductions are precisely matched by interest rate increases; hence, the firm makes no net gain from granting security. In the terms of the MM hypothesis, a lender can control the riskiness of her loan portfolio either by controlling the rates she will charge or by lending to firms with particular debt patterns. For obvious reasons, the conclusions I drew from this fact were unsurprising to economists; in effect, the economists already knew.[6]

The assumptions that underlay my proof also were unrealistic and I knew that much secured debt exists, but I was playing the same game as Modigliani and Miller. Much of my article consisted

---

6. For example, Brealey and Myers state that MM reached "an extremely general result. It applies not just to the debt-equity trade-off but to *any* choice of financing instrument. For example, MM would say that the choice between long-term and short-term debt has no effect on firm value." *Id.* at 372 (emphasis in original).

in relaxing the assumptions on which my proof rested or adding additional factors, to see whether a convincing explanation for the present pattern of secured lending would emerge. None did. This is not to say that none will but, as the next two parts of this Article show, none yet has.

III. Professor Levmore's Theory

Professor Saul Levmore explains the existence of security by reference to the phenomena of monitoring and freeriding.[7] To understand these phenomena, one must consider a particular form of strategic behavior: the retroactive reduction of interest rates. The interest rate a lender will charge is partly a function of the riskiness of a firm's projects. Therefore, a firm has an incentive to borrow at a particular rate and, after this rate is "locked in," to adopt riskier projects than previously. Limited liability explains this conduct: the firm's shareholders will capture the entire upside from the gamble but lose only the share price if the gamble fails. Creditors are aware that firms may engage in such strategic behavior and so might monitor—that is, watch—firms to prevent its occurrence. Alternatively, creditors will not monitor but will charge higher interest rates to compensate for the risk.

A firm might engage in this form of strategic behavior by making "asset substitutions." As an example, suppose a firm that once produced cotton cloth using one set of machines and, after borrowing money, switched to making transparent plastic suits using another set of machines. Creditors monitor particular assets, according to Levmore, to prevent such asset substitutions.

Levmore posits a world in which there exists one debtor, D, and two creditors, $C1$ and $C2$. Both creditors may monitor specific assets to prevent the debtor from converting them or substituting other assets for them. This duplicate effort is disadvantageous to D since his interest cost is partly a function of his creditors' monitoring costs, and these costs are unnecessarily high. Alternatively, neither creditor will monitor but both will charge high interest rates. The ideal solution, Levmore argues, is for D to have only one creditor monitor the particular assets. Then, if both previously had monitored, D's costs will decline. Or if neither monitored but one creditor now monitors, the other will freeride on its efforts and will charge lower rates. The best way for D to have only one creditor monitor is by giving it a security interest in D's assets; this creditor

---

7. *See* Levmore, *supra* note 2, at 50-59.

VANDERBILT LAW REVIEW [Vol. 37:1051]

then will monitor these assets, and no other creditor would have an incentive to monitor them because they are no longer available to satisfy judgments. Levmore claims that D will secure the most efficient monitor because doing so minimizes D's net credit costs. Therefore, security exists because it is efficient.

Levmore's theory is difficult to evaluate because it is imprecise about the functions that monitoring serves and about how creditors actually do it. Under the most plausible interpretation of his argument, his conclusions cannot hold. Under a somewhat less plausible interpretation, it is simply impossible to say what firms in his world would do without security, and thus impossible for Levmore to show that security functions as an optimal response. If Levmore's argument permits interpretations other than these two, it is for him to say. Respecting the first plausible interpretation, Levmore could be saying that monitoring by one creditor frequently is sufficient to prevent asset substitution. Concretely, it takes only one monitor to prevent D from selling his cotton manufacturing machines.[8] Then, if *both* $C1$ and $C2$ monitor, there is duplicate effort. Since Levmore explains security partly as a response to duplicate effort,[9] he apparently believes that, at least in many cases, one monitor is sufficient. If he does believe this, however, his explanation must fail because duplicate monitoring efforts rarely would occur in a world without security.

When one creditor's monitoring efforts alone would prevent asset substitution, only two equilibria are possible: one in which only one creditor monitors and the other in which none do.[10] The former outcome would be an equilibrium if at least one creditor in

---

8. Levmore states:

Consider again the need for $C1$ to be wary of debtor misbehavior. Why should $C1$ expend resources attempting to discover such misbehavior? $C2$ is also affected by such misbehavior and $C1$ may well expect $C2$ to monitor the debtor. Similarly $C2$ may anticipate that $C1$ will perform the necessary monitoring.

Id. at 53-54. This seemingly implies that monitoring by only one of these creditors would prevent asset substitution.

9. *Id.*

10. The text refers to a Nash equilibrium, which is the most commonly used equilibrium concept in economics. The concept supposes each actor in an economic environment to pursue a specified strategy designed to achieve a particular objective, such as to minimize costs. A set of strategies is in a Nash equilibrium when no actor has an incentive to alter his or her strategy, given that the other actors continue to pursue their strategies. Because no one has an incentive to alter course, an environment described by such a Nash equilibrium set of strategies is stable. Conversely, when at least one actor has an incentive to alter his or her strategy, given that the other actors pursue their strategies unchanged, the resulting outcome is unstable; the particular environment is not in equilibrium. *See* R. LUCE & M. RAIFFA, GAMES AND DECISIONS 170-79 (1957).

the market could prevent the debtor from disposing of his cotton machines at a cost to the creditor that is less than the gain the creditor would realize from ensuring that the debtor retained the machines. To see why, suppose: (i) security does not exist; (ii) several creditors can cost justifiedly monitor a particular debtor; and (iii) all of these creditors begin to monitor. Each creditor would be better off if it ceased to monitor, given that the other creditors continued to monitor. Levmore's assumption that one monitor is sufficient implies that a creditor who stops can obtain the full benefits from monitoring without incurring any of the costs. Any creditor to whom this obvious thought occurred would stop. The "stopping process" would end when only one creditor monitored, for this outcome is an equilibrium: a single creditor's monitoring efforts will vitiate the incentive of other creditors to monitor, yet the remaining monitor itself has no incentive to stop because, *ex hypothesis*, it is earning gains in the form of risk reduction that exceed its monitoring costs. To say that only one monitor can exist in equilibrium is to say that any other outcome is unstable. There could be several monitors for a time but the superfluous ones have incentives to stop; and there could be no monitors for a time, but then at least one creditor has an incentive to start.

Levmore argued that security is partly a response to duplicate monitoring. That only one monitor can exist in equilibrium, when monitoring by a single creditor would prevent asset substitution, is fatal to this argument. Put simply, the stable, pervasive existence of personal property security is quite unlikely to be a response to the disequilibrium phenomenon of duplicate monitoring.

Levmore's second argument is that debtors issue security when no one is monitoring them, to induce one creditor to begin. This argument too must fall. An equilibrium in which no one monitors can exist only if no creditor is a cost-justified monitor. In this circumstance, no creditor has an incentive to begin monitoring, though no one else monitors. If one such creditor is given security, it would not begin to monitor because, Levmore assumes, security does not affect the risk of asset substitutions; monitoring does.[11] If monitoring was not cost justified in the absence of secur-

---

11. Levmore's assumption that only monitoring reduces the risk of asset substitution is questionable since security seemingly substitutes for monitoring; the public notice that accompanies a security interest is partly meant to prevent the debtor from selling encumbered assets, and so reduces the secured creditor's need to monitor. Levmore, however, cannot assume that creditors with security monitor less than those without it because this assumption would contradict his conclusion that debtors secure the most efficient monitors: if

ity, it then could not become cost justified with it. Therefore, debtors never would give security to induce monitoring when no one monitors.[12]

Levmore instead might believe that one creditor's monitoring efforts would be insufficient to prevent asset substitution, though little in his language is consistent with this interpretation. Respecting this possible second interpretation of his argument, let the gain to a particular creditor from a reduction in the risk of asset substitution be such that, given the creditor's monitoring costs, monitoring the debtor only two hours a day is optimal. Then the risk of asset substitution can be eliminated only if several creditors monitor. There are three things to say about this interpretation of Levmore. First, if the debtor were to give security in this situation, that security might not be a response to *duplicate* monitoring efforts; all of these efforts actually could have been necessary. Second, if several creditors would monitor the debtor without security, then securing one of them seemingly could cause the others to stop only if the secured party lent a sum at least equal to the full value of the debtor's assets. To see why, suppose that D

---

secured creditors were to monitor less than unsecured creditors, then the cost-minimizing debtor strategy would be to secure the *least* efficient monitor so that the debtor would be monitored as inexpensively as possible. *See* Jackson & Kronman, *Secured Financing and Priorities Among Creditors*, 88 YALE L.J. 1143, 1157-58 (1979) (arguing that differential monitoring costs among creditors may provide an explanation for the existence of security).

12. This note formally demonstrates the text's conclusion and need be read only by those to whom that conclusion is not self-evident. Let P = default premium—that portion of the interest rate reflecting the risk of default—when a creditor is unsecured; Ps = default premium with security; L = amount of the loan that a creditor will lose on default; A = debtor's total assets if it does not engage in asset substitution; A' = assets the debtor might substitute for A; p = probability that the debtor will default if it does not engage in asset substitution; p' = default probability if the debtor does substitute, where $p'>p$; b = portion of the debtor's assets that a creditor could reach on default or, in other words, the ratio of a creditor's loan to the debtor's total debt outstanding; e = probability that the debtor will engage in asset substitution; and M = monitoring cost. Then, without security, $P = p(1 - e)(L - (b)A) + p'(e)(L - (b)A')$. Let $e = 0$ and call the resultant default premium P'. Then $P' = p(L - (b)A)$. The increment of the default premium attributable to asset substitution is then $P - P'$, and no creditor will monitor in the absence of security when $P - P'<M$. For security to produce monitoring given this cost comparison, it must be that $Ps - P'>M$ or $Ps>P$ by the requisite amount. Suppose that $A>\Sigma L$ but $A'<\Sigma L$ and let a creditor take security. Then compare: (i) no security: $P = p(1 - e)(L - (b)A) + p'(e)(L - (b)A')$; (ii) with security: $Ps = p(1 - e)(L - L) + p'(e)(L - (b)A')$. Hence, it must be that $Ps<P$, which also is intuitively plausible since security supposedly is taken to reduce risk. And if $P>Ps$, then $P - P'>Ps - P'$. Therefore, when $P - P'<M$, it must be that $Ps - P' <M$ also; thus, security cannot induce monitoring. In words, security only can reduce the default premium creditors will exact or leave this premium unchanged *if* security itself does not influence the risk of asset substitution. Consequently, if monitoring is not cost justified without security, it cannot be cost justified with security.

satisfied one-third of its credit needs from Firm X and gave Firm X a security interest in all of its assets, which are worth three times the amount of Firm X's loan. Firm X could reach only one-third of the value of these assets on default. Since the other creditors could levy on the remaining two-thirds, and since, by hypothesis, the first creditor's monitoring efforts alone are insufficient to prevent asset substitution, the other creditors would have no incentive to stop monitoring. If Firm X, however, lent a sum equal to the full value of D's assets and was secured fully, no other creditor would have an incentive to monitor D because no other creditor could reach D's assets. Therefore, the alternative interpretation of Levmore's argument may predict that debtors always will secure all of their debt until they run out of assets to offer—a prediction the facts disconfirm.

The final point that should be considered regarding the alternative interpretation of Levmore's theory is that it actually is difficult to know how many creditors would monitor if one creditor's monitoring alone would not suffice. The creditors might play a cooperative game, in which they share monitoring responsibility.[13] They might play a noncooperative game in which, as examples, each creditor might decide to monitor or not independently of what any other creditor might do; each creditor might bluff, saying that it will not monitor at all in the hope that others then would; or each might decide to monitor with a particular probability. In this last case, one cannot characterize market behavior without specifying the factors that cause creditors to choose particular monitoring probabilities. Predicting what *will* occur when the efforts of several creditors are necessary to prevent asset substitution, and when both coordination and conflict among creditors are possible, requires a great deal more work than Levmore has done. The analyst must make a set of probably highly context-specific assumptions about what each of the creditors knows about the debtor and the other creditors, and about what strategies the creditors will play; the analyst then must characterize the equilibria that might exist. Until Levmore does this for a variety of possible cases, he is unpersuasive; we cannot know to what phenomena security responds unless we know what phenomena are at least likely to exist.

---

13. Levmore apparently believes that cooperative monitoring never would occur but he does not justify this belief formally. *See* Levmore, *supra* note 2, at 54-55.

IV. PROFESSOR WHITE'S THEORIES

Professor White offers two explanations for the existence and efficiency of secured debt. The first claims that unsecured creditors will not raise their interest rates in response to security. Because secured creditors lower their rates, security is a net gain to the firm.[14] The second explanation claims that security is issued in response to creditor risk aversion; since risk aversion leads to inefficient outcomes, security is efficient.[15] Neither explanation is satisfactory. The first, like one interpretation of the Levmore theory, actually predicts that firms will secure all of their debt until they run out of assets. The second explanation predicts that banks will secure a greater percentage of their loans than will finance companies, but the opposite pattern of secured lending apparently exists. Thus the facts refute Professor White's interesting effort.

A. *The Interest Rate Argument*

The existence of secured debt is puzzling because the interest rate reductions of the secured creditors seemingly are offset by the interest rate increases of unsecured creditors. This latter group will raise their rates because the withdrawal of assets from the previously available asset pool increases the riskiness of their loans. White argues that secured creditors attach assets that actually are *not* available to the unsecured creditors. In consequence, the unsecured creditors will not raise their rates in response to security; since they never could reach the assets now devoted to the secured creditor, security cannot influence the risks they face. White traces the inability of unsecured creditors to reach their debtors' assets to recent changes in state law and to the new Bankruptcy Code. Respecting consumers, liberalized exemption laws allow debtors to keep so much property that "the unsecured creditor will be indifferent to the presence of secured claims on the debtors' assets."[16] Respecting firms, the very common practice of many bankrupt concerns to dissipate their assets in futile attempts at reorganization ensures that often "a rational prepetition unsecured creditor

---

14. White, *supra* note 3, at 480-89.

15. *Id.* at 491-502. White also suggests that the efficiency of security can be inferred from its existence: "One might ask why it has persisted in a free economy for so long if it is not efficient." *Id.* at 479. This suggestion is incorrect; the existence of security shows only that the private gain to at least some parties associated with its use exceeds the private cost to those parties, but the issue is whether the social gain exceeds the social cost. For example, monopoly power and cartels are pervasive features of free economies but are not efficient.

16. *Id.* at 487.

will be indifferent to others' taking of security."[17]

An initial difficulty with the argument that secured creditors attach assets unavailable to other creditors is that the pattern of secured lending seems not to have changed materially in the last two decades although many of the legal changes on which White relies have been adopted recently. This is particularly true of changes in bankruptcy law. If the present pattern of secured lending antedated these legal changes, the changes cannot be used to explain this pattern. White's argument would be persuasive only if he correlated changes in the law with changes in business practice, but he apparently cannot do so.

Further, White's argument is contradicted by the facts in another way. He seemingly supposes debtors to hold assets that creditors cannot reach in the event of bankruptcy unless the creditors are secured. Were this assumption true, secured loans would be less risky than unsecured loans, so the latter necessarily would carry higher interest rates. But if creditors cannot reach assets unless they have security and if unsecured loans are made at higher interest rates, debtors always would borrow on a secured basis until they ran out of free assets. A numerical example will illustrate: let X be the premium that creditors charge to compensate for the risk of default; let $p = $ the probability of default; let L be the amount of a loan that a creditor would lose on default; and let $A = $ the debtor's assets. With White, I assume that without security no creditor could reach the assets; A is out of bounds. Thus, $X = pL$; on default, the creditor loses the amount of the loan. To make matters simple, assume one debtor, D, and two creditors, $C1$ and $C2$. Each will lend \$100; $A = $ \$100; and $p = .02$.

There are three cases to consider. First, neither creditor is secured. Then $X1 = .02 \times \$100 = \$2$; $X2 = .02 \times \$100 = \$2$; and the debtor's total default premium—the amount that the creditors charge him for the risk they face—is $X1 + X2 = \$4$. Second, let the debtor give two security interests, each in assets worth \$50, with $C1$ getting one and $C2$ the other. Then for each creditor, $X = p(L-A/2)$, since on default the creditor can foreclose and collect one-half of D's assets. Therefore, $X1 = .02 (\$100 - \$50) = \$1$; $X2 = .02 (\$100 - \$50) = \$1$; and the total default premium is $X1 + X2 = \$2$. Security reduces the debtor's interest charges by \$2. Third, let the debtor secure only $C1$ for \$50. Then $X1 = .02 (\$100 - \$50) = \$1$; $X2 = .02 (\$100) = \$2$; and the debtor's total default

---

17. *Id.* at 489.

premium is $X1 + X2 = \$3$. This third case should not occur, however, because it is irrational of the debtor not to secure $C2$ also; by not doing so the debtor incurs an extra interest charge of \$1 with no corresponding gain. Hence, debtors in White's world will issue only secured debt until they run out of assets to offer. Neither consumers nor firms consistently act in this way, so the facts disconfirm White's theory.[18]

B.   Risk Aversion

Professor White's risk aversion theory has two aspects. The first assumes that employees, particularly bank lending officers, are risk averse and so will cause their firms not to make profit maximizing loans. The second aspect assumes that differential risk aversion exists among firms in credit markets.

1.   Employee Risk Aversion

Investors have three concerns: the timing of returns, the risk of returns, and the size of returns. An investor can achieve her preferred pattern of timing and risk by choosing an appropriate investment portfolio. Returns can be deferred by buying long term bonds, accelerated by buying T-bills; risks can be increased by purchasing shares in risky firms, decreased by holding riskless assets. Hence, an investor wants each firm in which she invests only to maximize the value of her investment in it.[19] This desire is premise to the conclusion that corporate managers ought to maximize share values.

Corporate managers who maximize share values will not act as if they are risk averse, for risk aversion follows from the diminishing marginal utility of money theory. This theory does not describe the behavior of a person who seeks to maximize share values. Such a person considers each new dollar of increase in value to be as important as each previous dollar of increase, and thus wants only

---

18.   For those who read note 12, the text's numerical example generalizes straightforwardly. When the creditor cannot reach the debtor's assets without security, $P = p(L)$. When the creditor can reach them with security, $Ps = p(L - L)$ if $A > \Sigma L$ or, as in the text's example, $Ps = p(L - (b)A)$ if $A < \Sigma L$. Because in both cases Ps is less than P, a debtor who wished to minimize credit costs would secure all of its assets; by doing so it would minimize its total default premium.

19.   Investors are sometimes said to want their companies to act in socially useful ways at the expense of profits, but this possibility is irrelevant to the analysis here in that White's argument and my criticism of it are unaffected if the goal "maximize investment value subject to a social responsibility constraint" is substituted for the goal "maximize investment value."

to maximize expected monetary returns; the person, that is, is risk neutral. Therefore, if corporate managers should maximize share values, then they should act in a risk neutral manner. A risk averse employee will refuse credit or offer less credit than would a risk neutral employee acting in the same circumstances. According to White, security partly ameliorates the effects of such employee risk aversion. Lending officers will make some profitable loans or make larger profitable loans on a secured basis than they would make without security; hence, security brings the volume of credit closer to the efficient level.

This argument is interesting but incomplete. As we will see, security cannot altogether cure the inefficiencies attributable to employee risk aversion. Thus, companies have incentives to cause employees to act in a risk neutral fashion even though the employees can make secured loans. The existence of these incentives raises two difficulties for White's argument. First, suppose that banks already have acted on their incentives to eliminate employee risk aversion. Since security still exists, White's argument that it is a response to employee risk aversion then must fail. Second, suppose that banks have not acted on these incentives. Then, White must explain why they have not, but this he has failed to do.

To better understand these two difficulties, it is useful to begin with the inefficiencies of risk aversion in the presence of security. A risk averse lending officer might demand *more* security than is necessary in the circumstances or might attempt to exact a *higher* interest rate than is necessary given that security exists. Either action will cause potential borrowers to forego credit altogether, to take less of it, or to request payment terms or other contract clauses that compensate them for the lending officers' unwarranted demands. Any of these actions will reduce a bank's profits. Corporate managers whose goal is to maximize profits thus have incentives to cause lending officers to act as if they were risk neutral, even though security exists.

Achieving employee risk neutrality is possible on White's assumptions. He does not advance facts that directly evidence employee risk aversion but rather infers its existence from an alleged asymmetry in bank employees' reward structures. He argues that the costs to employees if their loan portfolios perform badly—in terms of lost jobs, foregone promotions, or lower salaries —outweigh the gains to them if their loan portfolios do well. If the employee risk aversion problem is traceable to an asymmetry in reward structures, however, it seemingly can be cured by eliminat-

ing the asymmetry: employees can be rewarded more highly for successful performance and punished less severely for unsuccessful performance that is not the result of their own incompetence.

For White's argument to hold, then, he must show why senior corporate managers permit inefficient, seemingly easily changed reward structures to persist. One possible explanation for such behavior is that the senior managers themselves do not maximize profits. But these managers often are given stock options or warrants to induce them to behave as the shareholders would wish, and the shareholders prefer profit maximization. Why won't the ownership position of the senior managers cause them to alter the lending officers' reward structure to eliminate risk aversion? Why won't the senior managers' concern for their own reputations as successful business people induce them not to permit inefficient compensation strategies? Why won't the directors make senior management act efficiently in this regard? Why won't the shareholders, many of whom are knowledgeable pension funds and insurance companies, exert pressure on the directors? Why won't firms take over inefficient banks or, using different incentive structures, otherwise enter credit markets to take business away from banks that are plagued by inefficient employee risk aversion?

White's theory of security as a response to employee risk aversion is unsatisfactory, as these questions imply, because such risk aversion cannot exist if credit, capital, or managerial service markets function properly.[20] Hence, White's argument actually must rest on the existence of market imperfections that he neither discloses nor describes. Indeed, White's own authorities suggest that his argument actually faces the first difficulty noted above: competitive market pressures have caused at least some banks to alter employee reward structures to the point at which employee risk taking rather than risk aversion is the real problem. One such article,[21] written by a bank vice president, advanced the novel idea that a bank could increase profits by giving lending officers

---

20. Respecting the managerial services market, corporate managers have a strong incentive to maximize the profits of the companies or company divisions that they manage because a record of profit maximization is the best way to ensure the manager's own marketability. *See* Fama, *Agency Problems and the Theory of the Firm,* 88 J. POL. ECON. 288, 291-92 (1980). The recent tendency of top management to partition their companies into "profit centers" should broaden the employee universe over which this incentive operates. For a description of the tendency to use profit centers, see Williamson, *Corporate Governance,* 93 YALE L.J. 1197, 1224-25 (1984).

21. Roberts, *Increasing Bank Profitability by Modifying Loan Officer Performance,* 65 J. COM. BANK LENDING 2 (Feb. 1983).

financial incentives to expand output. The author then added:

> The most common response to evaluation and incentive systems of this kind is the·expression of fear that an officer will load up the portfolio with excessively risky loans. . . .
>
> . . . .
>   In order to continue addressing the risk question, our bank chooses to charge each loss to the proper officer's profit center report. This *double penalty* is simply an arbitrary decision to accommodate the high-risk question.[22]

To summarize, firms already may have altered their reward structures to eliminate the cause of risk aversion, in which case White has no explanation for the pattern of secured lending that now exists. Alternatively, firms do not respond to risk aversion. But an analyst who takes this position must explain why inefficient compensation packages for nonunionized middle-level employees persist. White neither has proven that employee risk aversion is now frequent nor has explained how it could be frequent. Until he accomplishes at least one of these tasks, his analysis is unpersuasive.

2. Firm Risk Aversion

My earlier article showed that if creditors differed in their degree of risk aversion, it was possible, at least in theory, for a debtor to reduce its net credit costs by securing its most risk averse creditors.[23] White argues that regulatory constraints cause banks to be more risk averse than finance companies and other potential lenders. He then concludes that security is a response to differential risk aversion. This conclusion might be persuasive were banks to hold a higher portion of their debt secured than other creditors, for then debtors seemingly would be securing their most risk averse creditors. Unfortunately for White's theory, most people believe that banks hold a lower portion of their debt secured than finance

---

22. *Id.* at 11 (emphasis added). White also cites F. SCHERER, INDUSTRIAL MARKET STRUCTURE AND ECONOMIC PERFORMANCE (2d ed. 1980). *See* White, *supra* note 3, at 493 n.41. Scherer, however, concludes: "All in all, the weight of evidence favors a conclusion that profitability does have a significant positive impact on managers' pay." F. SCHERER, *supra*, at 36. Scherer adds that senior management commonly hold equity or the right to buy equity on favorable terms, which biases them in favor of profit maximization. *See id.* Rigorous support for Scherer's view is found in Ciscel & Carroll, *The Determinants of Executive Salaries: An Econometric Survey*, 62 REV. ECON. & STATISTICS 7, 12 (1980) (results provide "a strong vindication of the neoclassical model of management behavior . . . . [W]e can confidently reject the null hypothesis that increasing the firm's profits by means other than increasing sales (e.g., by reducing production costs) does not increase executive rewards.").

23. *See* Schwartz, *supra* note 1, at 22-24.

companies do.[24] Supposing this to be so, White's explanation of security as a response to differential risk aversion among creditors must be rejected unless he can show that banks lend to the least risky pool of debtors and that, holding debtor risk constant, debtors prefer to give security to banks rather than to their other creditors. White has made neither showing.

V.   THE MM HYPOTHESIS REVISITED:
SOURCES OF POSSIBLE EXPLANATION

A central problem with Professor Levmore's and Professor White's efforts is their failure to address in detail the question why a *variety* of debt instruments is seen. This failure apparently is the source of the penchant of many current efforts, including those discussed here, to predict either that firms always or never will issue secured debt, when in fact firms seldom act in such all or nothing ways. Finance economists have begun to address the "variety" question by focusing on the existence of taxes and bankruptcy costs.

Interest payments are deductible to firms but income paid out as dividends or retained is not. Hence, the existence of the corporate tax should bias firms toward issuing debt, other things equal. The ability of firms to benefit from the interest deduction, however, varies. Firms incurring or expecting losses have little use for it. Also, firms differ in the ways available to them to minimize taxes; for example, some may use the investment tax credit while others, who sell largely services, are unable to avoid taxes in this way and so may have a greater need for the interest deduction that debt provides. In addition, investors are in different tax brackets. Corporations pay relatively little tax on dividends they receive, the income of pension funds is tax exempt, and high-bracket taxpayers may dislike corporate debt because they must pay ordinary income tax on it. Rather, high-bracket taxpayers may prefer equity, for if firms retain dividends these taxpayers can cash out many investments at capital gain rates. This heterogeneity in the preferences of firms and investors for debt may supply an explanation of the optimal capital structure for particular firms or markets as a

---

24. White's footnotes also evidence the belief that finance companies secure a greater portion of their loans than banks do. Note 59 of White's article begins by claiming that "[r]eceivables and inventory typically secure" commercial finance company loans, and the note later quotes a Wall Street Journal story which explains that banks have less expertise in secured lending than finance companies do. These authorities seemingly imply that banks are secured less frequently than finance companies are.

whole.

Explanations in this vein are unlikely to be relevant to the secured debt puzzle. Analysts to date have shown that tax related capital market equilibria can occur only under fairly unrealistic conditions. In addition, the tax models tend to predict equilibria in which investors hold only debt or equity, not both; the variety of securities in the portfolios of many investors is an embarrassment to the theory. Also, in the equilibria that these models derive, no optimal capital structure for a particular firm exists; rather, firms are indifferent to their capital structures, but the entire corporate sector has a debt/equity ratio equal to the ratio of the wealth of those investors who prefer debt to the wealth of those who prefer equity.[25] Finally, the interest on secured and unsecured debt is equally deductible to firms and is equally ordinary income to debtholders. Hence, an explanation for the existence of security probably will not be found in theories that make taxes a significant variable.

The likelihood of firms to incur bankruptcy costs—*i.e.*, to experience financial distress—rises with the amount of debt in their capital structures; simply, the more a firm borrows the more likely it is to default, other things equal. Thus, the expected costs of financial distress constrain the amount of debt firms will find it optimal to assume. Also, the more risky a firm is, the more likely it is to fail. Since the costs of financial distress rise with the amount of debt that a firm issues, scholars have predicted that high risk firms will issue less debt than low risk firms, but the facts do not strongly support the predictions.[26] These financial distress models ultimately may contribute to understanding the secured debt puzzle, but understanding seems far away. One intuitive reason for the lack of help these models give is that the presence of security seems to correlate positively with risk, yet the presence of risk, at least in theory, seems to correlate negatively with debt; and security cannot be taken if no debt exists.

A promising heuristic that these recent analyses of the MM

---

25. A good recent article that reviews the literature and evidences these difficulties is Auerbach & King, *Taxation, Portfolio Choice, and Debt-Equity Ratios: A General Equilibrium Model*, 98 Q.J. ECON. 587, 589-601 (1983). Respecting unrealistic conditions, this set of models proves that a "tax equilibrium" can occur only when all debt is riskless, short sales are prohibited, and a single firm exists whose underlying returns are perfectly correlated with the returns of some linear combination of the returns of other firms.

26. *See, e.g.*, Castanias, *Bankruptcy Risk and Optimal Capital Structure*, 38 J. FIN. 1617 (1983) (reviews literature, finding only weak support for the hypothesis that high risk firms will issue less debt than will low risk firms, and then only if the firms are small).

problem suggest, however, is to ask why *some* debtors find security less costly than other debtors do, and why *some* investors/lenders want it more than others do. Inquiries should focus directly on the possibility of differential preferences among debtors and creditors regarding security. Professor White's effort to characterize the preferences of banks in contrast to the preferences of other creditors thus is wise, though he failed to develop this focus into a model. Another possibility is to focus on the differing characteristics of debtors. Retailers that borrow, for example, seemingly are secured more frequently than manufacturers that borrow. Perhaps this is because a relatively large portion of the personalty capital of manufacturers has attributes that are firm specific, and thus this capital has greater value to the firm than to the market. For example, Firm X's machines are useful primarily to Firm X and so are worth little on the market; creditors thus may not want security in them. In contrast, the bulk of a retailer's assets consist of inventory and accounts receivable, which are worth as much to the market as to the firm. Consequently, retailers should issue more debt secured by personalty than should manufacturers. This Article's task is not to develop such a theory, but rather to suggest that answers to the secured debt puzzle are less likely to be found in simple notions that "security interests reduce risk" than in careful analyses of the *differing* preferences for security among debtors and creditors.

VI. CONCLUSION

The secured debt puzzle remains: firms issue much debt on a secured basis, yet the causes and effects of this practice are largely unknown. The normative implications of this ignorance are a separate question. Professor White argues that security should not be banned because creditors will substitute more costly ways to achieve the objectives that security now serves.[27] This argument is correct but beside the point. No one has argued, at least not in the last three decades, that security should be banned. The issue concerns the priority position of secured debt in the event of default, and this issue usually entails clashes between equity and efficiency goals. For example, it is one thing to say that employee claims should come behind secured creditor claims in bankruptcy if it is *known* that security as an institution creates important efficiency gains for the economy as a whole. It is another thing to argne for

---

27. *See* White, *supra* note 3, at 502-08.

this position on the ground that although security itself may be a bad thing, secured lending will become marginally more costly if poor employees are moved ahead in the line. Calling the efficiency properties of security into question, that is, will and should influence the balancing process usually invoked to solve bankruptcy distribution questions. Indeed, ignorance regarding the true properties of security may underlie the Bankruptcy Code's relatively unfavorable treatment of the secured creditor, which is done to increase the likelihood that insolvent firms will reorganize; and reorganizations are thought to be desirable largely because they save jobs and sometimes salvage something for small equity investors. That ignorance respecting security can have such policy consequences makes research into its actual nature an important matter, both for those to whom recent bankruptcy distributional trends are desirable and for those to whom these trends are undesirable.