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## Bankruptcy, Secured Debt, and Optimal Capital Structure: Comment

CLIFFORD W. SMITH, JR. and JEROLD B. WARNER\*

### I. Introduction and Summary

IN AN ARTICLE WHICH recently appeared in this Journal<sup>1</sup>, James Scott raises the issue of why a firm might issue debt which was "secured" by the lender's right to seize designated assets of the firm upon default. Scott argues that "the issuance of secured debt can increase the total value of a firm, even in the absence of corporate taxes". He concludes that the optimal strategy for the firm is to issue as much secured debt as possible.

Scott's result is at odds with the irrelevance propositions of Modigliani and Miller [4]. Although his treatment is technically correct in the sense that his conclusions do follow from his assumptions, Scott's result depends critically on the assumption that the firm's net operating earnings are independent of its level of secured debt. In this note, we argue that, within Scott's framework, such an assumption is inconsistent with the notion of rationality on the part of individuals. Furthermore, for reasons which we discuss, making such an assumption presupposes the very result which Scott seeks to establish. Relaxing Scott's assumption about the nature of the firm's operating earnings, we show why the issuance of secured debt will not alter the value of the firm. Since Scott's analysis does not account for the existence of secured debt, we suggest an alternate explanation.

### II. The Role of Secured Debt in Scott's Model

The reasoning which implies Scott's result, that the firm should issue as much secured debt as possible, is straightforward:

... one of the hazards of engaging in commercial activity lies in the fact that a disgruntled customer, supplier, or injured party may file suit and win legal damages from the firm. Upon bankruptcy, the claim of a secured creditor to the assets pledged as security ranks ahead of claims for legal damages. By the issuance of secured debt, the firm can increase the value of its securities by reducing the amount available to pay legal damages in the event that the firm should go bankrupt. (pp. 2-3 ff.)

In other words, the firm is assumed to be able to increase the total value of its

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<sup>1</sup> James H. Scott, Jr., "Bankruptcy, Secured Debt and Optimal Capital Structure", *The Journal of Finance* 32 (March, 1977), pp. 1-19. We think that Scott's Reply, which follows this Comment, in no way vitiates our objections to his reasoning.

debt plus equity by taking actions which reduce the value of potential legal claims against the firm.<sup>2</sup>

This line of reasoning presumes that the prices at which customers and suppliers are willing to do business with the firm, and hence the firm's earnings, are unrelated to the possibility of subsequently being able to collect damages from the firm. Such a presumption seems inconsistent with rational behavior on the part of individuals, given Scott's assumption that there is "equal and costless access to information about current prices and all other relevant data". Moreover, when Scott's analysis is modified to take into account the possibility that customers and suppliers adjust their behavior to reflect the firm's current level of secured debt (and hence the probability of being able to successfully sue), any "gains" from issuing secured debt can evaporate entirely: they may be fully offset by lower product prices and lower earnings which the firms receives.<sup>3</sup>

When a customer buys the firm's product, he purchases both the services of the product and a "security" representing the right to sue the firm. It is true that if a firm increases its level of secured debt, it reduces the value of the "security" which customers receive. At the same time, however, the price paid for that "security" falls;<sup>4</sup> the total price of the firm's product will fall by an amount which is exactly equal to the market value of the claim which an increase in secured debt has "taken away" from potential customers or suppliers. The earnings of the firm, which in part consist of the revenues it receives from the sale of "securities", fall by the same amount.

Within Scott's framework, "securing" debt leaves the value of the firm unchanged. So long as the firm's customers pay competitive prices for the securities

<sup>2</sup> It is not accurate to say that the value of the firm increases when there is a decrease in the amount available to pay legal damages in the event of bankruptcy without first defining the "value of the firm". If the value of the firm includes the value of untraded claims for legal damages against it, then expropriation only involves a transfer of wealth between claimholders, rather than a change in the total value of all claims. However, the only securities with whose value we need be concerned is the equity, whose value still rises when expropriations can be made from other classes of claimholders.

Note that the same problems of definition are present in capital structure models which introduce bankruptcy costs and a tax advantage to debt financing. If the legal profession and the government are regarded as claimholders on the firm, then, in that case, capital structure is irrelevant to the total value of the firm, although most certainly not to the shareholders. It is in their interest to try to minimize the value of the claims which the government and the lawyers jointly hold.

<sup>3</sup> This is in contrast to Scott's analysis. His comparative static analysis (eq. 5, p. 10) presumes that the partial derivative of  $X$ , the firm net earnings, with respect to the level of secured debt,  $R$ , is equal to zero.

<sup>4</sup> Our analysis requires no particular assumption about the degree of competition in product or factor markets. A shift in the demand curve for the product will occur independent of how it is supplied.

One might argue that the contention that product prices reflect the probability of payoff in a lawsuit only applies to "big-ticket" industrial equipment. While it is true that the relevant dollar magnitudes are likely to be larger in that case, such an argument confuses the issue. The appropriate price adjustment reflects both the probability of lawsuit and the probability that, if successful, the suit would result in bankruptcy. The second probability is indeed higher with "big-ticket" items. However, that fact has no import for the contention that the possibility of events with lower probabilities will also be taken into account when product prices are determined.

Furthermore, the argument that "information is costly" has no bearing on our analysis. Even when there is uncertainty about the extent of future lawsuits, our analysis will continue to hold as long as consumers make unbiased assessments of the probability and magnitude of lawsuits.

they purchase when they buy the firm's product, the amount gained by "securing" the debt is equal to the amount lost because customers and suppliers pay less for the firm's product. In other words, if "securing" the debt reduces the net present value of future lawsuits by \$1 per unit of product purchased, it will also reduce by \$1 the amount customers are willing to pay.

Thus, Scott's analysis will not apply to the general case of customers and suppliers, as he claims. Even if an individual did business prior to an increase in the firm's level of secured debt, the prices originally paid reflect the probability of a change in the level of secured debt. Securing debt will not increase the wealth of the firm's owners except in the special case where the affected claimholder has no contractual relationship with the firm (e.g., the firm's delivery truck injures a pedestrian). However, even in that case, securing debt is not the only way to prevent third parties from obtaining claims against the firm; the purchase of liability insurance serves the same purpose. In fact, "most companies carry insurance against liability for personal injuries and property damage to others and it is not unusual for their indentures to include specific provisions with respect to the maintenance of such insurance".<sup>5</sup> Hence the mere possibility of third-party lawsuits is not a sufficient condition to explain why firms issue secured debt.

In addition to the case of third-party liability, Scott notes another instance where the affected claimholder has no contractual relationship with the firm: the "claimholder" can be the tax collector. Scott correctly points out that, in a world with corporate taxes, there does exist an incentive to issue secured debt. This is because, in bankruptcy, secured creditors are supposed to be paid before "priority" creditors such as the Internal Revenue Service. Issuing secured debt minimizes the value of the government's claim on the firm should liquidation take place. Unlike the case of customers and suppliers, there is no offsetting "price adjustment".

However, there are at least two reasons why Scott's arguments about taxes fail to provide a "rigorous explanation of the widespread use of secured debt contracts". His arguments cannot account for the observed instance of secured debt contracts before corporate taxes.<sup>6</sup> Furthermore, in corporate bankruptcies involving reorganization rather than liquidation, it is not at all clear that the courts adhere to the rules of priority. In fact, as Warner [9] has indicated, there are many cases where "junior" claimants are compensated before claimholders senior to them are paid in full.<sup>7</sup>

<sup>5</sup> See American Bar Foundation, *Commentaries on Indentures*, p. 343. A typical covenant is written as follows:

The company will at all times maintain in effect a comprehensive general liability policy issued by an insurer acceptable to the Trustee providing coverage with maximum limitations of liability of not less than \$\_\_\_\_\_ for bodily injury to any one person, \$\_\_\_\_\_ for bodily injury to any group of persons as a result of one accident and \$\_\_\_\_\_ for property damage.

<sup>6</sup> See DuBois [3, p. 246].

<sup>7</sup> Note also that property taxes are assessed against the property, not the owner. In the case of property taxes, there is no advantage to securing the debt, since the tax lien must be paid by the secured creditor for him to obtain clear title to the asset. Furthermore, if the major corporate tax which can be absolved through bankruptcy procedures is the corporate profits tax, then how large a benefit would that be for a bankrupt firm?

### III. An Alternate Explanation of Secured Debt

Scott attempts to provide an “explanation of the widespread use of secured debt contracts”. We have argued that his suggested explanation is inadequate. In this section, we would like to offer an alternate explanation for the existence of these provisions in debt instruments.<sup>8</sup>

To explain which debt issues will be secured, we must examine the costs as well as the benefits of “securing”. Issuing secured debt calls for expenditures over the life of the contract which can be avoided if the loan is unsecured (e.g., required reports to the debtholders, additional bonding and monitoring expenses, etc.). Secured loans will only be issued if the benefits exceed these costs.

As long as lenders have the opportunity to employ their funds in different markets, some of which involve essentially zero default, processing, monitoring, and administering costs (e.g., the Treasury Bill market), any of these costs contractually assumed by the lender will ultimately be paid by the borrower. If the borrower does not offer a repayment schedule which completely compensates the lender for the opportunity cost of the funds plus default, administrative, and other costs, the lender will be “better off” in Treasury Bills. Furthermore, as long as the lending market is competitive, lenders will only receive a normal return on the resources employed.<sup>9</sup>

This suggests that the borrowers have the incentive to offer lenders contracts which minimize these costs imposed on lenders. In fact, it should not matter to lenders what specific provisions the contract contains. The equilibrium promised interest rate will adjust to yield a normal compensation. We feel that the basis for an explanation for secured debt is that it minimizes the total costs of borrowing by reducing transactions costs imposed on lenders. This is done in several ways.

We hypothesize that secured debt is one way of precluding asset substitution by borrowers. If the value of the borrower’s assets is more variable, default on a loan is more likely.<sup>10</sup> Thus, the borrower has an incentive to substitute projects with more variable cash flows for projects with less variable cash flows after the sale of debt, resulting in a reduction in the value of the debt and an increase in the value of the equity. Of course, lenders recognize the extent to which asset substitution is possible and require a higher promised interest rate to compensate them for the adverse borrower behavior induced by unsecured debt. If the debt is secured, those pledged assets cannot be disposed of without permission of the lenders and the range of project substitution is reduced.

Secured debt appears to reduce administrative costs and enforcement costs. Secured debt insures that the lender has clear title to the assets and prevents the borrower from subsequently obtaining additional debt which jeopardizes the lender’s claim. Since it is likely to be less expensive to take possession of property to which the lender already has established title, through collateralization foreclosure expenses are reduced in the event of default.

<sup>8</sup> The testable implications of our analysis are further developed in Smith and Warner [8].

<sup>9</sup> Scott [p. 1, fn. 2] implicitly recognizes that demand considerations cannot “explain” secured debt. However, he does not explore these supply-side issues.

<sup>10</sup> See Black-Scholes [2] or Smith [7].

#### IV. Conclusions

Scott's explanation of the use of secured debt raises some interesting issues. We have attempted to point out some problems with this treatment and to offer an alternative view of the reasons for the use of secured debt. Our analysis produces substantially different predictions than Scott's. He argues that firms will issue as much secured debt as possible. We suggest that the firm will not necessarily "go to the limit"; it depends upon the relative magnitudes of the costs and benefits we have outlined above.

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