

## **Property Rights, Risk and Leverage**

Richard A. Graff ([rgraff@electrum.us](mailto:rgraff@electrum.us)) and  
Joseph P. Kairys, Jr. ([j.kairys@evf.vdu.lt](mailto:j.kairys@evf.vdu.lt))

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Richard A. Graff

Electrum Partners L.L.C.  
Chicago, IL

[rgraff@electrum.us](mailto:rgraff@electrum.us)

and

Joseph P. Kairys, Jr.

Visiting Researcher  
School of Business, Economics and Law  
Göteborg University  
Göteborg, Sweden

[j.kairys@evf.vdu.lt](mailto:j.kairys@evf.vdu.lt)  
[jkairys@gsb.uchicago.edu](mailto:jkairys@gsb.uchicago.edu)

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### **Abstract**

Risk matters when corporate debt has a positive probability of default. Lenders have traditionally used covenants to protect their property rights because the financing and operating decisions of firms can reduce the value of the firm's outstanding debt. We examine the use of captive finance subsidiaries and special purposed entities (SPEs) to partition default risk within the firm. A more complex arrangement of property rights within the firm allows the parent firm to retain operating flexibility while offering lenders better protection. We conclude that capital structure is a relevant decision variable for corporate managers because firms are able to obtain leveraged finance at a lower cost when risk is partitioned using separate legal structures within the firm.

## Property Rights, Risk and Leverage

The organization of property rights in modern corporations is complex. The firm's balance sheet summarizes the contractual claims of trade creditors, debt holders, government (in the form of taxes payables) and other creditors, along with the ownership rights of the shareholders who hold the residual claim to the assets of the firm. The consolidation of the firm's balance sheet, however, obscures the use of separate legal structures *within* the firm to partition and manage risk.

Unlike U.S. government bonds which are considered to be risk-free by definition, corporate bonds, and all other debts issued by a corporation, are risky. Debt represents a contractual claim on the firm for promised payments of principal and interest, and the terms of the debt contract (bond indenture) detail the rights and obligations of both the creditors and the firm. Once debt has been issued, the subsequent financing and investment decisions made by the firm affect the risk of the firm's outstanding debts. Any measures to control the conflict of interest between debt holders and equity holders that result from the firm's financing and investment decisions must be negotiated *ex ante* and incorporated into the debt contract.

The capital structure irrelevance proposition of Modigliani and Miller (1958, hereafter MM) asserts that a firm's choice between debt and equity financing has no effect on the market value of a firm in a world of no taxes and default-free debt. When there is no possibility of default on a firm's debts, there is no possibility for conflict between debt holders and equity holders. Fama and Miller (1972, hereafter F-M) relaxes the default-free debt assumption of MM, but other assumptions are explicitly strengthened to remove the potential conflict between debt holders and equity holders. In

F-M the effects of financing decisions cannot harm debt holders because “investors are assumed to protect themselves against any sort of ‘financing decisions’ that have the effect of expropriating their positions without appropriate compensation” (p. 151). F-M terms such protection a “me-first” rule, and F-M also assumes that the operating decisions of firms are given. Fama (1978) further assumes that bankruptcy involves no costs, that “me-first” rules are costlessly enforced, that “there are no costs in keeping a firm’s management to the decision rules set by its security holders,” and that the investment strategies of a firm are given.<sup>1</sup>

As we discuss in a related paper, Graff and Kairys (2005), the approach taken by MM, F-M, and Fama (1978) models all transaction costs related to corporate securities as a zero transaction costs environment. Coase (1999, pp.9-10) regards such an approach as:

... a teaching device. It’s to say, “Let’s ignore this for the time being and see what happens.” And if you ignore transaction costs, you see their importance, you see the arrangements that have to be made. And then you can say, “Oh, this is what you do in a world in which there are no transaction costs. Well, now let’s move to one in which we have transaction costs and see how it operates.” It’s a stage in one’s thinking.

Jensen and Meckling (1976), on the other hand, pursue the approach advocated by Coase and study the world of a positive transaction costs environment. In particular, Jensen and Meckling explicitly address the potential for conflict between debt holders and equity holders due to the financing and investment decisions taken by the firm.<sup>2</sup>

One area of potential conflict that Jensen and Meckling identify is “the incentive effect associated with debt” where firms have an incentive to take on risky investment

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<sup>1</sup> “Although decisions to be made in the future are unknown, the rules the firm uses to make current and future investment decisions are given.” Fama (1978), pp. 273-274.

<sup>2</sup> Jensen and Meckling (1978) note that the positive transaction costs they identify as associated with corporate debt “exist only when the debt has some probability of default.” (p. 342, note 55)

projects. As Black and Scholes (1973) show, a firm can be thought of as owned by debt holders who have written a call option on the value of the firm with a strike price equal to the face value of the debt. Merton (1973, 1974) shows that if the risk of the firm increases; the value of the call option also increases. Thus, undertaking investment projects that raise the volatility of the firm's cash flows will benefit equity holders and harm debt holders.

Jensen and Meckling discuss how it is possible, in principle, to limit the potential for harm to debt holders through the use of covenants that limit managerial behavior. However, such protection is likely to be incomplete (p. 338).

To completely protect the bondholders from the incentive effects, these provisions would have to be incredibly detailed and cover most operating aspects of the enterprise including limitations on the riskiness of the projects undertaken. The costs involved in writing such provisions, the costs of enforcing them, and the reduced profitability of the firm (induced because the covenants occasionally limit management's ability to take optimal actions on certain issues) would likely be non-trivial. In fact, since management is a continuous decision making process, it will be almost impossible to completely specify such conditions without having bondholders actually perform the management function.

Jensen and Meckling argue that covenants will be written to the point where the "nominal" marginal costs of more restrictive covenants equal the marginal benefits. Although covenants that restrict dividends, future debt issues, the sale of assets, maintenance of working capital are commonly observed, along with the requirement to provide audited financial statements on a timely basis, it is not a common practice to observe covenants that explicitly restrict the investment activities of the firm.

The contribution of the present study is to examine corporate structures that are very familiar within the realm of real world corporate finance, but that have received relatively little attention in corporate finance theory. In particular, we analyze how the

use of subsidiaries and special purpose entities can reduce risk, and thereby reduce the transaction costs associated with the property rights held in the firm by debt holders. Partitioning risk through the use of separate legal entities provides an alternative to writing detailed covenants that may be difficult, if not impossible, to monitor and enforce at the parent company level. The creation of a subsidiary to perform a specific function such as financing receivables, or the creation of a special purpose entity (SPE) for a specific investment, provides a practical means of constraining the investment strategy within the given subsidiary or SPE, while not unduly restricting the investment policies of the firm as a whole.

Even if a firm partitions risk by creating an SPE for a specific investment, the use of debt means that there remains a chance of bankruptcy, and the pricing of the debt will reflect the expected bankruptcy costs. In bankruptcy, the holders of debt and equity hold overlapping claims to the assets of the firm, and the legal system must permit all parties “due process” before pruning and redefining the assignment of property rights in the firm. We show how a little used feature of property law permits an *ex ante* assignment of property rights that do not overlap, thereby eliminating the expected transactions costs associated with the bankruptcy process. The result is a new form of leverage that we call “synthetic debt.” By carefully organizing the property rights to a given asset, risks to lenders can be reduced, with the result that leveraged finance can be obtained at lower cost to the firm.

The remainder of this paper is organized as follows. In Section I we begin by reviewing from a property rights perspective where positive transaction costs related to the use of debt have been identified in the literature. In Section II we focus on the widely

observed use of captive finance companies as an example of a separate legal entity within a parent company that has a well-defined investment policy. In Section III we broaden our discussion to include subsidiaries and other structures that may have off balance sheet treatment, and we examine how one company, General Motors Corporation (GM), actively uses separate legal structures to partition risk. In Section IV we show how to create an alternate form of leverage, synthetic debt, with lower transaction costs. We first partition risk in a separate legal entity, and then we separate ownership interests on a temporal dimension instead of the usual form of owner and lien holder. Section V concludes.

#### I. Transaction Costs and Financial Contracting

Property rights are not commonly thought of as an organizing principle for the study of corporate finance, yet the work of Coase (1937, 1960), Demsetz (1964, 1966, 1967), and Cheung (1998) among others, provides an insightful starting point for analyzing the transaction costs associated with corporate securities. In Graff and Kairys (2005) we build upon the work of these earlier researchers by distilling the transaction costs associated with the property rights in corporate securities to three components: the *exchange* of property rights, the *enforcement* of property rights, and the *assignment* of property rights in the bankruptcy process. We identify both short-lived and long-lived aspects of these components, but the most important dimensions of transaction costs are the trading of bonds and shares in short-lived secondary market transactions (exchange costs), and the monitoring and recourse of the long-lived bundle of property rights in the firm represented by debt and equity when the firm operates independently (enforcement

costs) and when the firm has sought protection from its creditors in bankruptcy (assignment costs).<sup>3</sup>

The one area where there is widespread agreement amongst economists about how transaction costs should be modeled is that the direct costs of exchanging (trading) bonds and shares in well-developed capital markets are extremely low and closely approximate the frictionless “perfect markets” of economic theory. These costs are thus normally assumed away when studying issues of financial contracting and corporate capital structure.<sup>4</sup>

However, as previously noted, the manner in which the corporate finance literature addresses all other transaction costs follows two divergent paths. Either such costs are assumed away so that there are no transaction costs associated with corporate securities (the zero transaction costs approach of MM, F-M, and Fama (1978), or at least some of the costs of exchanging property rights, enforcing property rights, and assigning property rights in bankruptcy are assumed to be constraints and are thus explicitly modeled (positive transaction costs).

Although the direct costs of exchanging property rights are assumed away without controversy, the issue of the information required to determine the price at which property rights are exchanged remains an issue of debate. F-M, for example, assumes that “information is costless and available to everybody” (p. 150). Other researchers choose to model information as costly, and there is also a large asymmetric information

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<sup>3</sup> Jensen and Meckling use the term “agency costs” to describe the long-lived enforcement and assignment costs related to corporate securities. We exclude from further analysis the short-lived enforcement and assignment costs related to the trading mechanism itself (“settlement risk”) as well as the costs of tender offers when there is a (long-lived) exchange of an entire class of corporate securities.

<sup>4</sup> Such an assumption is not appropriate for the study of market microstructure, as Madhavan (2000, p. 251) observes that “frictions do matter” when studying the trading mechanism itself.

literature that explores how investors discount the prices at which they exchange property rights issued by firms because investors have less information than firms. See, for example, Ross (1977), Leland and Pyle (1977), Myers (1984), and Myers and Majluf (1984), Chan and Thakor (1987) and Rajan (1992).

The transaction costs related to the enforcement and assignment of property rights in the firm are determined, in part, by the form of financial contracting chosen by debt holders. Smith and Warner (1979) analyze the use of debt covenants to control the conflict between debt holders and equity holders, and they explicitly consider whether this conflict is better modeled under a zero transaction cost environment (“the irrelevance hypothesis”) or a positive transaction cost environment (“the costly contracting hypothesis”). Smith and Warner observe that covenants are a persistent feature of debt contracts that have been used for hundreds of years, as are the institutional structures that are in place to enforce compliance with covenants.

Smith and Warner group covenants into four categories: production/investment covenants, dividend covenants, financing covenants, and bonding covenants. Production/investment covenants restrict a firm’s merger activities, the disposition of assets (including the pledging of collateral), and the holding of financial assets, but Smith and Warner observe that “direct restrictions of production/investment policy would be expensive to employ and are not observed” (p. 117). Dividend covenants limit the ability of firms to pay out funds to equity holders and prevent the extreme case described by Black (1976) where a firm could pay a liquidating dividend and leave creditors with an empty shell. Financing covenants restrict the issuance of additional debt, either in absolute terms, or by requiring that additional debt be made junior to the claims of

existing debt holders. Other fixed obligations such as leases may also be restricted. Additional debt or leases increases the probability of default, and thereby decreases the value of existing debt unless the new debt is subordinate. Bonding covenants require the provision of audited financial statements and may also specify the accounting rules for calculating ratios and other provisions contained in the covenants.

To assess how frequently such covenants are included in bond indentures, Smith and Warner selected a random sample of 87 public issues of debt during the years 1974 and 1975. They found that over 90 percent of the bonds contain restrictions on the issuance of additional debt, 23 percent restrict dividend payments, 39 percent restricted merger activities, and more than a third restrict the disposition of the firm's assets.

The form of specific covenants was largely standardized by the American Bar Foundation in *Commentaries on Indentures* (1971), a multiyear undertaking that is described in detail in Rodgers (1965), so that the cost of drafting the necessary legal documentation is small. Smith and Warner conclude, however, that the "direct and opportunity costs of complying with the contractual restrictions appear to be substantial" (p. 153). For this reason Smith and Warner reject the irrelevance hypothesis of zero transaction costs advocated by MM, F-M, and Fama (1978) in favor of the costly contracting hypothesis and a world of positive transaction costs that represent binding constraints on the behavior of firms and investors.

Other researchers take a theoretical, rather than empirical, approach to the study of covenants and choose to assume zero transaction costs for the enforcement and assignment costs associated with long-lived property rights in the firm. We take Black and Cox (1976) as indicative of this approach. Black and Cox specifically assume in

their model “no bankruptcy costs, transaction costs, or agency costs” (p. 351). They find that safety covenants (defined as “contractual provisions which give the bondholders the right to bankrupt or force reorganization of the firm if it is doing poorly according to some standard,” p. 355), subordination arrangements, and restrictions on the financing of dividend and interest payments all serve to increase the value of bonds. Black and Cox note, however, that their results assume costless bankruptcy, and that the introduction of bankruptcy costs might have an important effect.

In a world of zero transaction costs with costless bankruptcy, Black and Cox state (p. 357):

Contrary to what is sometimes claimed, premature bankruptcy is not in itself detrimental for the bondholders. It is in their interests to have a contract which will force bankruptcy as quickly as possible. If bankruptcy occurs, the total ownership of the firm will pass to the bondholders, and this is the best they can achieve in any circumstances.

Black and Cox go on to state that they view bankruptcy as (p. 367):

... simply the transfer of the entire ownership of the firm to the bondholders. The physical activities of the firm need not be affected. The bondholders may not want to actively run the company, but probably the stockholders did not either. The bondholders could retain the old managers or hire new ones, or they could refinance the firm and sell all or part of their holdings. Certain legal costs may be involved in the act of bankruptcy, but if contracts are carefully specified in the first place with an eye toward minimizing these costs, then their importance may be significantly reduced.

Such a view, however, ignores the complexity of the institutional structures that have evolved to deal with the pruning/redefining of property rights in the bankruptcy process.

Bulow and Shoven (1978) question why bankruptcy occurs if avoiding the real costs of bankruptcy is always in the interests of the holders of property rights in the firm taken as a whole. Bulow and Shoven conclude that there is a conflict of interest among the holders of property rights in the firm, and that there exist asymmetries in their

negotiating and controlling abilities. Bankruptcy is thus an adversarial process, rather than a simple transfer of ownership as envisioned by Black and Cox. Bulow and Shoven assume three classes of asymmetrical claimants in the firm: bank lenders, bond holders, and equity holders. Bondholders are assumed to be a noncohesive group that is unable to negotiate, while bank lenders are assumed to negotiate directly with equity holders.

Bulow and Shoven find that a negative net worth is not a sufficient condition to force a firm into bankruptcy (contrary to Black and Cox), that there are cases where a firm can continue to operate even though its expected value as an ongoing firm is less than its liquidation value, and that merger with a healthy company is an alternative to liquidation. By explicitly modeling the transaction costs faced by the holders of property rights in the firm, including the dynamic interactions between different classes of claimants, Bulow and Shoven reveal a far more complex world than the costless bankruptcy assumed by Black and Cox.

Much recent research has departed from the zero transactions costs world of F-M and Fama (1978) and investigates in detail the behavior of firms when faced with positive enforcement and assignment costs. We cite a sample of studies, all of which show that the *structure* of the debt contract matters. Diamond (1991) models the use of bank debt (with monitoring) versus public bond issues (without monitoring), and he shows that firms will acquire a reputation by first borrowing from banks, before later turning to public debt markets. Asquith, Gertner, and Scharfstein (1994) study junk bond issuers in financial distress and conclude that how financially distressed firms restructure is influenced by their debt structures. Firms with secured private debt and numerous public

debt issues are less able to restructure their debts through out-of-court agreements and are more likely to file for bankruptcy protection.

Rajan and Winton (1995) study the use of covenants and collateral in providing incentives for debt holders to monitor their property rights in a firm. Houston and James (1996) examine the mix of private and public debt issued by firms and find that banks create durable information monopolies when borrowing is concentrated with a single lender.

More recent studies have looked at commonly observed forms of debt that have not been widely studied. Dennis, Nandy and Sharpe (2000) investigate contracting costs, signaling, credit quality, bank relationships, and bank information monopolies for revolving credit lines to medium and large firms. Dennis, *et. al.*, find that the negotiated contract terms for revolving credit lines appear to be driven by asymmetric information, contracting costs, and/or credit risk. Lee and Mullineaux (2004) study the size and composition of commercial lending syndicates, and they find that syndicates are structured to enhance monitoring and facilitate renegotiation in the event of financial distress.

Although the capital structure irrelevance proposition of MM remains a starting point for the study of corporate finance, there is a substantial body of evidence that shows that the form and structure of corporate leverage matter in a world of positive transaction costs and risky debt. All of the studies cited in this section, however, treat the firm as a single entity, and we now want to relax this assumption by considering how risk is partitioned through the use of separate legal entities *within* a firm.

## II. Captive Finance Companies

Captive finance companies (hereafter “captives”) illustrate how firms can partition risk and constrain their investment policies through the use of a special purpose subsidiary.<sup>5</sup> When they are established, captives are expected to remain precisely that, i.e., financial subsidiaries that derive virtually all their business from the operations of the parent company. The operating activity of each captive is highly correlated with the corresponding operating activity of the parent; if the parent’s business activity is discontinued, in most cases the value of the captive is reduced to the net value of its loan portfolio and marketable securities.<sup>6</sup>

It follows that the operations of the firm are not expected to change materially due to the formation of a captive. Accordingly, the decision to establish a captive can be regarded as a financing decision, i.e., a decision about the capital structure of the firm.

If capital structure is irrelevant to the value of the firm, then the formation of a captive should have no effect on the market value of the firm beyond (at most) a marginal loss of value to reflect value leakage due to the administrative and legal costs of establishing the captive. Consistent with this view, Miller (1977) cites captives in the Presidential Address to the American Finance Association on “Debt and Taxes” as his favorite example of “neutral mutations that serve no function, but do no harm” (p. 273). Miller goes on to specifically reference what he calls the “perceptive discussion” in Andrews (1964) to which we now turn.

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<sup>5</sup> Andrews (1964, p. 80) defines captives as “wholly owned sales finance subsidiaries” established by manufacturing or merchandising corporations that “arrange to assume the burden of granting credit to customers.”

<sup>6</sup> This is at least approximately correct for most captives. A counterexample is GE Credit, which is a first-rank finance company on a stand-alone basis. Other captives have significant operations beyond providing financing for the parent company’s products. An example is General Motors Acceptance Corporation (GMAC) which has significant mortgage operations.

Andrews' discussion of the "irrelevance" of captives mirrors the perspective of Miller on the irrelevance of corporate capital structure. Andrews concludes (p. 92):

A nonfinancial parent company has but one stream of cash inflow to be split up, and no matter how many pieces are carved out, it is the sum of those pieces. Similarly, profits for the shareholders of the parent cannot be manufactured by trading assets and services at a price within the same over-all corporate entity. Thus, parent and captive are essentially one unit for analysis of liquidity, cash inflow, and profit.

Lewellen (1972, p. 30) takes an even dimmer view of captives:

The likelihood of default on cash debt service obligations can only rise, and the cushion against lender loss in liquidation can only shrink... Consequently, finance captives should, if anything, have a negative effect on credit standing. Not only would the market for corporate debt have to be highly imperfect, but lenders would have to be perverse in terms of their own pragmatic debt service criteria to permit any other conclusion.

However, beginning with the formation of General Motors Acceptance Corporation (GMAC) in 1919, the number of captives began to grow rapidly in the late 1950's and early 1960's. Nelson and Maginn (1966) estimate that fourteen captives were operating in 1946, sixty-nine in 1957, one hundred and twenty-five in 1961, and over one hundred and fifty captives were operating by 1966.

Either the corporations that create captives, together with the investors who purchase debt issued by captives, are irrational, or the analyses of Andrews and Lewellen are flawed. We take the latter view, because neither Andrews nor Lewellen consider the impact of captives on reducing the enforcement costs associated with debt finance.

As previously noted, Jensen and Meckling (1976) observe that writing covenants that restrict the investment policies of firms would be extremely costly; even though such restrictions would protect debt holders from firms undertaking riskier investment projects that will reduce the value of previously issued debt, and Smith and Warner (1979) report

that such covenants are not observed in practice. Dipchand, Roberts, and Viscione (1982, hereafter DRV) argue that captives serve to control the enforcement (agency) costs associated with the “incentive effect associated with debt,” and although captives incur additional costs, they claim that the net effect favors the use of captives.

The creation of a captive partitions risk within a corporation and separates manufacturing activities from financing activities. DRV report a statement by a corporate treasurer that reflects this view (p. 191):

Debt capacity was increased because relatively liquid assets – receivables – with reasonably predictable collections were segregated, and therefore lenders were willing to allow a higher debt-to-equity ratio (three to one) than when the same receivables were included in consolidated assets and subject to the risks of a manufacturing and finance business combined.

When lending to a captive, debt holders have an implicit guarantee that the borrowed funds will be used only for financing receivables and not for parent company investment in new manufacturing capacity, for example. Because financing activities have lower business risk than manufacturing activities, the segregation of lower risk activities into a separate legal entity provides the equivalent of a covenant from the parent company restricting the firm’s investment activities for a given debt issue, while still maintaining flexibility for the firm’s investment activities at the parent company level. DRV cite the survey results of Roberts and Viscione (1981a) in support of their hypothesis.

DRV also claim that captives reduce transaction costs that are *internal* to the company’s operations. DRV, based upon the work of Roberts and Viscione (1981b), argue that captives enhance the internal efficiency of financing activities within the firm, as well as ease the monitoring task of lenders. Roberts and Viscione (1981b) view captives as an instance of multi-divisional form reorganization that may be understood in

terms of Williamson's (1975) theory of hierarchy, thereby reducing not only the transaction costs related corporate securities, but also reducing the transaction costs described by Coase (1937) that explain the existence of firms.

Empirically DRV examine a sample of Canadian firms that formed captives to test whether such firms used proportionally more debt than firms in the same industries that did not form captives. Their hypothesis is that as a result of reduced enforcement (agency) costs for firms with captives, a permanent increase in consolidated debt-to-total-assets ratios will be observed in the period around the formation of the captive. During the three-year period following the formation of captives, merchandising firms did not show a significant increase in their debt ratios, but for manufacturing firms the increase in corporate leverage was statistically significant at a 5 percent probability level.

Kim, McConnell and Greenwood (1977, hereafter KMG) investigate the effect that the formation of a captive has on the rearrangement of a firm's capital structure. KMG find that the existing bondholders of parent firms suffer windfall losses when captives are formed, and that stockholders earn excess returns. KMG interpret this finding as evidence that the "me-first" rules described by F-M are not perfectly effective in protecting bondholders from the effects of financing decisions, and that stockholders are able to expropriate wealth from bondholders.

In a world of positive transaction costs, there is no reason to expect that debt holders can always negotiate perfect and costless protection from the financing decisions that firms take. Perfect protection would require the ability to write *ex ante* contracts that cover *all* future states of the world, and the opportunity costs to firms would likely be unacceptably high. Lehn and Poulsen (1991), for example, report that the costs to debt

holders of imperfect protection against the financing decisions taken by firms can be extremely high, for “bondholders purportedly sustained \$1 billion in losses in the leveraged buyout of RJR Nabisco” (p. 646).

For the specific case of captives, KMG have shown only that the debt holders of the firms in their sample wrote poor *ex ante* debt contracts. Roberts and Viscione (1981a) survey both firms that formed captives, and firms that did not. For the latter group, Roberts and Viscione report that “loan agreements prohibit some firms from forming captives” (p. 38). For the former group that formed captives, they document that lenders permitted 13 of the 15 firms with rated public debt in their sample to increase the firm’s debt ratio, and only a single firm out of the 15 experienced a decline in its credit ratings on parent company debt issued prior to the formation of its captive. For the other 14 firms in their sample, the firms’ credit ratings were unchanged on parent company debt that was issued prior to the formation of the firms’ captives for a period of three years following the formation of the captives.

Malitz (1989) finds, for a sample of 14 firms with publicly traded debt outstanding, that wealth expropriation is not the motivation for establishing captives, and she reports that, on average, shareholders gain 14.9 percent, bondholders lose 2.3 percent of their wealth, and firm value increases 10.4 percent during the six months preceding and the month of incorporation of captives, with all results statistically significant at the 5 percent level. Malitz explains these results as evidence that firms are concerned with their reputations, and she cites the work of Diamond (1989) and John and Nachman (1985) who show that in a multi-period world where firms return to the debt market, there is a positive value for establishing a reputation for non-expropriation.

We offer a different interpretation of Malitz's empirical results: the change in capital structure transfers wealth from existing bondholders of the firm to shareholders and transfers expected cash flows from future bondholders of the firm to shareholders. More precisely, the 2.9% average decline in current bond values represents the net transfer of wealth from existing bondholders to shareholders. Although statistically significant, the wealth transfer is of marginal economic significance.<sup>7</sup> Since there is also a 14.3% average gain in shareholder value that corresponds to a 10.4% average gain in firm value, expected earnings of the firm must experience an increase beyond that due to the wealth transfer from existing bondholders. We assert that the additional increase represents, in part, a transfer of expected interest payments from future bondholders to shareholders, as well as an increase in expected profits (EBITDA) of the firm.

The two net transfers from bondholders occur because the formation of a captive partitions investment risk in the firm between two separate entities: the captive engages only in the less risky activity of financing, while the parent engages in the riskier activity of manufacturing or merchandising. The captive is expected to have lower business risk, as measured by the stability (volatility) of its earnings or cash flow.<sup>8</sup> Thus, future debt holders of the captive have an implicit guarantee that the investment policy of the captive is fixed, and hence the investment risk of the captive is lower than the original risk of the parent firm, since the captive only engages in financing activities. For an activity with lower business risk, lenders are willing to accept higher debt ratios without a change in the credit rating of the firm. As emphasized by Malitz, the reputation of the firm is

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<sup>7</sup> Malitz reports that the calculated wealth transfer from bondholders to shareholders is not "large enough to justify the administrative and legal expense of the subsidiary's incorporation" (p. 1045).

<sup>8</sup> See Schwartz (1959) for an early discussion of business risk.

important because the guarantee that the investment policy of the captive will remain fixed and be limited to the financing of receivables is normally only implicit.

Due to the formation of a captive, a net transfer of interest also occurs from future bondholders to shareholders because, in the absence of the captive, future bondholders of the firm would require higher interest payments to finance customer purchases. However, future bondholders of the captive will not immediately require a higher interest rate as the debt ratio of the consolidated firm rises within limits, because the existence of the captive implicitly provides a restriction (covenant) on the investment policy of the firm about how the newly borrowed funds will be used.

The less than three per cent net transfer of wealth from existing bondholders of the firm to shareholders occurs because future default claims of existing bondholders on the assets that the parent transfers to the captive are now subordinate to the expected default claims of the captive's future bondholders.<sup>9</sup> The wealth transfer is relatively small because the default risk of the captive is expected to be lower than the default risk of the parent. Thus the empirical finding by Malitz of a small but statistically significant non-zero wealth transfer from existing bondholders to shareholders is consistent with the predictions of the risk partition model and provides empirical support for the proposition that bondholders do not presently enjoy complete and costless protection as envisioned by the "me-first" rules of F-M.

The increase in firm value in excess of ten per cent suggests that expected firm profits grow because of the expansion of financing activities via the captive. With the ability to provide additional financing at competitive rates because of the creation of a

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<sup>9</sup> Note that the subordination only occurs with respect to default by the captive. In the event of default by the parent, the existing bondholders have the same claim on the equity in the captive that they enjoyed prior to the formation of the captive.

captive, a portion of the increased profits comes from future bondholders of the captive who do not demand a higher interest rate because the credit rating of the captive remains unchanged even as the consolidated debt ratio of the parent's balance sheet rises.

We suggest that any remaining portion of the increased expected profits of the firm comes from the firm continuing to earn its existing profit margin on an expanded volume of financing activity and potential incremental sales by the parent due to the firm's ability to provide financing to more of the parent's customers. In any case, the finding by Malitz of a statistically significant increase in firm value upon formation of a captive provides empirical support for the proposition that capital structure irrelevance does not remain valid in the case of risk partition within the firm via formation of captives.

Contrary to Miller's view that captives represent "neutral mutations that serve no purpose but do no harm" (1977, p. 273), we conclude that captives allow firms to partition default risk and create more complex capital structures than envisioned by MM. The result is that risky firms can obtain additional financing and increase the firm's consolidated debt ratio to a level that would otherwise likely cause a downgrade of the firm's credit rating. Since the formation of captives has no effect on default risk in a world of default-free firms, these results are not inconsistent with the propositions of MM.

Having examined the special case of captive finance companies, we now broaden our discussion to include a broader range of the legal entities observed within a parent corporation.

### III. Subsidiaries and Off Balance Sheet Structures

When studying the leverage decisions of firms, it is important to remember that most large firms are not a single legal entity as is commonly assumed in economic models. Instead, modern corporations have complex internal structures of separate legal entities; thereby making it necessary to analyze the range of choices available to the firm in how leverage can be structured. To illustrate the issues under discussion, we choose to examine in detail a single firm, General Motors Corporation (GM).<sup>10</sup>

The complexity of GM's internal structure is revealed in its disclosure of subsidiaries. GM consolidated in its 2004 financial statements the operations of 282 directly or indirectly owned subsidiaries, of which 161 were located outside the United States. In addition, not included in GM's consolidated financial statements were 47 other directly or indirectly owned domestic and foreign subsidiaries, 6 active subsidiaries, 41 inactive subsidiaries, 65 companies the investments in which were accounted for by the equity method, and 210 dealerships.<sup>11</sup>

Expanding upon our discussion of captive finance companies in the previous section, we examine three additional structures that illustrate the choices available to firms in managing their capital structures: subsidiaries, the securitization of receivables and financial assets, and synthetic leases. By partitioning risk, all three of these structures reduce the costs to debt holders of enforcing their property rights in the firm. For the structures which may receive off balance sheet treatment (securitization and

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<sup>10</sup> Unless otherwise noted, all information about GM is taken from the parent company's 2004 annual report (10-K) or most recent quarterly report for the second quarter 2005 (10-Q) filed with the Securities and Exchange Commission (SEC). We also use the corresponding 10-K and 10-Q reports for General Motors Acceptance Corporation (GMAC).

<sup>11</sup> There is an ongoing process of creation and disposition of subsidiaries. In 2004, GM organized or acquired 87 subsidiaries, and dissolved, sold, or spun-off 40 subsidiaries.

synthetic leases), risk is carefully partitioned into specially constructed entities that are “bankruptcy remote” so that expected bankruptcy (assignment) costs are minimized as well.<sup>12</sup>

We begin by considering subsidiaries. Subsidiaries may be the result of distinct business segments operating within the same country, or subsidiaries may be formed due to the legal requirements of operating in a foreign country. Provided a subsidiary has substantial operations, banks are normally willing to lend to the subsidiary on a stand-alone basis. That is, banks review the financial statements of the subsidiary (prepared according to local accounting standards in the case of foreign subsidiaries), and banks extend credit to the subsidiary on the same terms as to other companies of similar size and credit risk. Large subsidiaries, such as captive finance companies, may even be able to access the public debt markets directly.

A decision frequently faced by the parent firm is whether or not to guarantee loans made to its subsidiaries. The parent firm’s credit rating is normally higher than the credit rating of its foreign subsidiaries, so that provision of the parent’s guarantee reduces the firm’s interest expense on a consolidated basis.<sup>13</sup> However, provision of a parent guarantee increases the parent’s probability of default, as well as potentially making the parent’s existing covenants “tighter” because such guarantees may be specifically included in the calculation of debt ratios, etc. under the parent’s existing bond indentures or loan covenants.

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<sup>12</sup> As of mid-2003, a change in U.S. accounting rules (FIN 45 and FIN 46 R of the Financial Accounting Standards Board (FASB)) removed off balance sheet treatment for virtually all synthetic lease structures. In the next section, we examine how synthetic debt structures should still qualify for off-balance sheet treatment.

<sup>13</sup> There are also cases where a subsidiary, such as a captive finance company or a regulated utility subsidiary of a holding company, may have a higher rating than the parent. In such cases the question of a parent guarantee is a moot concern.

As an alternative to providing a formal guarantee, a parent firm may provide a “comfort letter” to the subsidiary’s lender indicating that the parent firm supports its subsidiary. Such a “comfort letter” falls short of a legal guarantee, but there exists a potential reputation cost to the parent if the subsidiary defaults and the parent fails to assume responsibility for its subsidiary’s debts.

In the case of GM, we observe the situation where the credit ratings of some of GM’s subsidiaries are (potentially) superior to the credit rating of the parent corporation. As of mid-2005, all the major bond rating agencies had downgraded GM’s credit rating below investment grade to “junk bond” status (BB). GMAC, however, has a split credit rating between investment grade (BBB) and non-investment grade depending upon the rating agency.<sup>14</sup> Thus, instead of guaranteeing its subsidiaries’ debts, GM is actively seeking to improve the credit rating of some of its subsidiaries by explicitly partitioning risk so that subsidiaries can obtain investment grade credit ratings.

In 2001, GM and GMAC entered into an agreement to provide investors with an explicit guarantee that the captive finance company, GMAC, would not engage in transactions designed to support the manufacturing operations of the parent company. Specifically, “GMAC shall not, nor shall it permit any of its subsidiaries to, guarantee any indebtedness of, or purchase any equity securities issued by, or make any other investment in, GM (parent company only) or any Automotive Affiliate. In addition, GMAC shall not, nor shall it permit any of its subsidiaries, to purchase or finance any real property or manufacturing equipment (including tooling) from or of GM or any Automotive Affiliate that is classified as an asset on GM’s consolidated balance sheet,

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<sup>14</sup> As of August 8, 2005 when GMAC filed its second quarter 10-Q, S&P and Fitch rated GMAC below investment grade as BB and BB+ respectively. Moody’s and DBRS rated GMAC investment grade as Baa2 and BBB(low) respectively.

except in conformance with prudent and commercially reasonable standards established on an arm's length basis.”<sup>15</sup> Thus, GM and GMAC provided investors with a legally binding guarantee restricting the investment operations of the captive from directly benefiting the manufacturing operations of the parent, thereby directly addressing the “incentive effects associated with debt” identified by Jensen and Meckling (1976).

GMAC has also taken steps to enhance the credit rating of one of its subsidiaries by agreeing to sell a 60 per cent equity interest in GMAC Commercial Holding Corp.<sup>16</sup> Because of the need for its commercial mortgage subsidiary to access the public debt markets, GM sought sophisticated and financially strong investors to enhance the credit rating of its subsidiary, while retaining a minority interest that will be accounted for on the equity method. Although not stated in the press release, GM subsequently disclosed that “the transaction closing is contingent upon GMAC Commercial Mortgage securing an investment grade senior debt rating by Standard and Poor’s, Moody’s and Fitch.”<sup>17</sup> We thus observe an explicit partitioning of risk, where the objective is to obtain higher credit ratings for healthy subsidiaries on a stand-alone basis.

Firms also create separate legal structures that are specially designed to be “bankruptcy remote” in order to obtain what is called “structured finance” at a lower cost than borrowing at the parent level. One such widely used structure is the securitization of receivables and other financial assets. A finance company, such as GMAC, generates financial assets in the form of consumer auto loans, residential mortgages, commercial mortgages, and dealer floorplans. GMAC can borrow funds and record the financial assets on its balance sheet, or GMAC can originate the loans and then effectively place

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<sup>15</sup> Exhibit 10, GM annual report (10-K), 2004.

<sup>16</sup> GMAC Press Release, August 3, 2005.

<sup>17</sup> Note 14, GM second quarter 10-Q, 2005,

the loans directly with investors. GMAC still earns fees for servicing the underlying loans, but it no longer earns the spread between its borrowing rate and the lending rate on the underlying loans.

Gorton and Souleles (2005) argue that a key source to value in securitization is by using carefully constructed SPEs to reduce expected bankruptcy costs. There are usually two separate SPEs created, and it is important not only that the sale of financial assets from a finance company such as GMAC be regarded as a “true sale,” but that the SPEs be constructed so as to be “bankruptcy remote.” The activities of the SPE are normally severely restricted at the time of its organization, so that the SPE substitutes for extremely restrictive covenants. In this way, enforcement costs and assignment costs are minimized for lenders investing in the securitized assets. Gorton and Souleles find that securitization is most advantageous when the firm originating the financial assets is deemed to be risky and/or considered to face large bankruptcy costs.

Schwarcz (2003) concludes that by providing liquidity, securitization reduces the risk of bankruptcy and increases the expected value of the claims of unsecured creditors. He argues that companies are able to access funds at lower cost “*precisely due to the bankruptcy remoteness*” of the SPEs (p.31). In other words, through the use of carefully constructed SPEs, risk is partitioned more completely and more precisely than is feasible through the formation of a separate wholly-owned subsidiary.

GMAC makes extensive use of securitization “where the economics and sound business principles warrant their use.”<sup>18</sup> As of year end 2004, GM reported total liabilities of \$451,803 million, plus an additional \$105,949 million of “Finance and Insurance Operations Receivables sold or securitized.” Thus, GM first partitions risk by

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<sup>18</sup> GM annual report (10-K), 2004.

segregating its financing activities into a separate subsidiary, GMAC, and GMAC further partitions risk by creating multiple SPEs for the sale of financial assets that are created during the ordinary course of its business. Investors view the purchase of the securitized financial assets as less risky than lending directly to GMAC, which in turn is viewed as less risky than lending directly to GM whose senior debt is rated below investment grade by all four major credit rating agencies.

The use of SPEs to securitize financial assets reduces both the enforcement and assignment costs faced by lenders and provides support for the Miller (1977, p. 263) assertion that “if the direct and indirect deadweight costs of the ordinary loan contract began to eat up significant portions of the tax savings, other forms of debt contracts would be used instead.” Moreover, by partitioning risk, firms appear able to continue to borrow when conventional borrowings may be unavailable or extremely costly.<sup>19</sup>

Mills and Newberry (2004) find that firms with less favorable bond ratings or higher debt ratios report greater amounts of interest expense on their tax returns than they report on their audited financial statements. They further report that the greatest book-tax reporting differences occur when firms are close to violating their debt rating covenants. Mills and Newberry argue that “these suggest that credit constrained firms are more likely to use structured financing arrangements as a way to access low-cost financing sources or enhance their financial statement balance sheets” (p. 32).

Synthetic leases are another structure where bankruptcy remote SPEs are created in order to obtain financing for a specific asset to be used by the firm. Hodge (1998),

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<sup>19</sup> MM (p. 273) note that as debt ratios rise, firms face “increasingly stringent restrictions imposed on the company’s management and finances by the creditors; and ultimately in a complete inability to obtain new borrowed funds, at least from the institutional investors who normally set the standards in the market for bonds.

Weidner (2000), and Miller (2002) all discuss the synthetic lease structure where a physical asset such as real estate is acquired by an SPE. The SPE obtains financing from lenders and leases the asset to the firm. Lenders look to the credit quality of the firm for repayment, and the lease is normally structured as a triple net lease so that the lessee, i.e., the firm, is responsible for all expenses associated with the leased asset such as taxes, insurance and operating expenses.

The synthetic lease structure is designed so that for accounting purposes the firm reports the expenses associated with an operating lease, and no corresponding asset or liability appears on the firm's balance sheet. For tax purposes, however, the firm is recognized as the owner of the asset and is able to claim depreciation deductions against the firm's taxable income. The SPE is set up to be "bankruptcy remote" with minimal overhead expenses so that the lease payments received from the firm are passed through directly to the lenders who provide the financing, and the SPE is normally restricted at the time of its organization to be limited to the financing of a specific asset. Enforcement and assignment costs are minimized by the design of the structure.

A benefit to lenders of the synthetic lease structure is that leases enjoy priority over senior debt claims in bankruptcy, a point noted by Smith and Warner (1979). Although the SPE for a synthetic lease is normally thinly capitalized with only 3% equity, the lessee (i.e., the firm) normally provides a guarantee that protects the terminal value of the asset from a loss of up to 85% of its appraised value at the time the loan agreement is signed. Thus, lenders face potential losses in two events. First, if the asset loses more than 85% of its appraised value over the life of the loan. Second, if the firm goes bankrupt. In bankruptcy, the firm will normally no longer be responsible for its

guarantee of the asset's value. Moreover, the firm must decide whether to affirm or reject the lease. If the firm affirms the lease, regular lease payments continue to be made. If the firm rejects the lease, the SPE no longer receives lease payments to service its debts and faces its own bankruptcy proceedings.

Following the accounting scandal at Enron, U.S. accounting standards have been tightened effective mid-2003 so that most synthetic leases are required to be disclosed, at least in part, on the balance sheet.<sup>20</sup> Whereas previously the standard synthetic lease structure was organized with only 3% equity, the new accounting regulations require a minimum of 10% equity. The new accounting standards also require that the guarantee provided by the lessee to protect the lender from a decline of up to 85% of the asset's value must be disclosed by the firm.

Even with the more stringent accounting standards now in place, the benefits to lenders of reduced enforcement and assignment costs from the synthetic lease structure remain. Firms must now record such assets and their corresponding liabilities on firms' balance sheets, and when the new accounting standards took effect on July 1, 2003, GM increased both its assets and liabilities by \$917 million.<sup>21</sup> Lim, Mann, and Mihov (2003) argue that lenders are not fooled by off-balance sheet debt in the form of operating leases, even though there is only limited disclosure of such operating leases in the notes to firms' financial statements. Although GM no longer enjoys off-balance sheet treatment for its synthetic leases, loans to GM controlled SPEs for synthetic lease structures are less risky. Not only is risk partitioned to a finer level as compared to lending directly to GM at the

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<sup>20</sup> Cf. note 12.

<sup>21</sup> FIN 45 and FIN 46R took effect on July 1, 2003 for firms with a December fiscal year end. The effective date varied slightly for firms with a different year end for their financial statements.

parent company level, but operating leases are of higher priority than senior debt in the event of bankruptcy.

Contrary to the MM assertion that capital structure is irrelevant when debt is default-free, in a world of risky debt we observe the active partitioning of default risk through the use of separate legal structures within a single firm. Although Miller (1977) dismisses captives as “neutral mutations,” the resources spent by firms to establish captives and to form SPEs for securitization and synthetic leases strongly suggests that such “mutations” serve a positive purpose where the benefits obtained exceed the costs incurred. By lending to separate legal entities rather than writing detailed covenants which may be difficult to monitor and enforce, lenders are able to more completely and more precisely control the risks to which they are exposed.

The use of debt, because it involves a contractual promise to pay specified amounts on specified dates, necessarily carries with it the potential risk of bankruptcy. Although default risk can be partitioned and reduced through the use of separate legal structures, even in bankruptcy remote structures there remains the theoretical possibility of bankruptcy in the event of default on the legal structure’s outstanding debt. Using the organization of property rights as a starting point, we turn next to explore what Coase (1991, p. 718) calls “the richness of the institutional alternatives between which we have to choose” in order to design a form of leverage without the use of debt.

#### IV. Synthetic Debt

In a firm, the property rights of debt holders and equity holders are commingled and overlapping. The financing and investment decisions taken by the firm can change the risk of the firm’s outstanding debt, and we observe the frequent use of covenants by

debt holders to protect their property rights in the firm. As covenants restricting the investment decisions of firms may be difficult, if not impossible, to monitor and enforce, firms widely use separate legal structures within the firm (subsidiaries and SPEs) to partition default risk. For debt issued by a captive or by an SPE, lenders look to the protections provided by the structure of the separate legal entity. When lending to the parent firm, debt holders pay close attention to the priority of their claims (senior secured, junior subordinated, second-lien, etc.), and the debt is priced accordingly.

When default risk is partitioned through the use of separate legal structures, the parent firm retains flexibility in its overall operating and financing decisions. Rather than restricting the financing and investment decisions of the parent through the use of restrictive covenants, debt holders can often better protect their property rights by the manner in which an SPE is structured. At the time that an SPE is established, the financing and investment activities of the SPE can be carefully defined and circumscribed. The result is that the enforcement costs associated with the property rights held by debt holders can be driven, in theory, to zero.

Business risk related to the underlying activity of the SPE remains, so that SPE debt has not been made riskless. By design, SPEs are constructed to be “bankruptcy remote” so that factors other than the debt issued by the SPE should not lead to a bankruptcy filing. However, the assignment costs associated with a bankruptcy filing by the SPE or, in certain cases by the parent firm, cannot be completely eliminated when an SPE issues debt because the theoretical potential of a shortfall remains. As we discuss below, in the case of SPEs used for the securitization of receivables, the risk of bankruptcy remains if the actual default rate on the underlying receivables exceeds the

default rate assumed when designing the SPE. In the case of synthetic leases, the risk of bankruptcy remains if the parent rejects the lease and stops making the required lease payments.

Gorton and Souleles (2005) examine in detail the requirements for SPEs used in the securitization of receivables. It is important that securitizations be regarded as a “true sale,” otherwise if the parent (also referred to as the “sponsor”) files for bankruptcy, the bankruptcy court may consolidate the assets of the SPE with the parent. For this reason, most securitizations are structured using two separate SPEs. The other feature of the debt issued by SPEs in securitization transactions is that such debt is normally separated into three tranches: senior notes (A notes), junior or mezzanine notes (B notes) and a subordinated interest commonly called C notes. As Gorton and Souleles (2005, p. 16) point out, “C notes are typically privately placed. This is partly because they are riskier, but also because *they do not qualify as debt for tax purposes* (emphasis added).”

The underlying business risk for securitized debt issued by an SPE is the default rate on the underlying receivables (loans) that have been securitized. As the default rate for a pool of receivables can be reasonably estimated, the creation of a residual interest (C notes) that does not qualify as debt serves as a “shock absorber” to ensure that there is no default on the actual debt that is issued by the SPE (A and B notes). That is, a shortfall in payments to holders of C notes does not trigger a default and a subsequent bankruptcy filing by the SPE. Bankruptcy of the SPE would occur only if the actual default rate on the underlying receivables exceeds the “cushion” provided by the subordinated interest of the holders of C notes. Thus, assignment costs for SPE debt have been effectively eliminated provided that a “true sale” of receivables has taken place *and*

the actual default rate on the underlying receivables remains below the threshold level at which a default on payments to the holders of the actual debt issued by the SPE (A and B notes) could occur.

Turning to the case of synthetic leases, the underlying business risk is the leasing of a physical asset, most frequently real estate, but it could also be aircraft, railroad cars, etc. Although the synthetic lease structure has the potential to eliminate enforcement costs for the holders of debt issued by the SPE, there remain potential assignment costs in the event that the lessee of the asset (normally the parent firm) files for bankruptcy. In the event of a parent bankruptcy filing, the existing lease for the continued use of the SPE-owned asset must either be affirmed or rejected. If the lease is affirmed, the parent continues to make regular lease payments and has the continued use of the asset. If the lease is rejected, the parent must surrender the use of the asset to the SPE. The SPE will then be forced to file for bankruptcy unless the asset can be immediately and costlessly leased to a new lessee, as there is no longer a cash inflow to service the SPE debt.

Lenders to a synthetic lease SPE have effectively made a secured loan, and security interests in specific assets are widely used in corporate lending. In the general case, at the time that a loan is negotiated, the firm assigns a security interest in the form of a lien on specific assets owned by the firm.<sup>22</sup> In bankruptcy the debt holder looks first to the value of the collateral for the repayment of the loan. Debt holders are only entitled to receive the principal amount of the loan, and any surplus value of the collateral remains for other holders of property rights in the firm. If the value of the collateral is insufficient to repay the principal amount of the loan, the debt holders become unsecured creditors for their unpaid principal balance.

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<sup>22</sup> There also exists an active market in second-lien loans that are subordinate to first-lien loans.

The assignment costs of bankruptcy are still incurred in the case of secured lending because the bankruptcy court must adjudicate the overlapping claims to the pledged collateral. Other holders of property rights in the firm are entitled to “due process,” so debt holders cannot immediately realize the value of their assigned collateral. Moreover, interest payments to debt holders are suspended for the duration of the bankruptcy proceedings. Debt holders thus face economic losses when a firm files for bankruptcy protection, even if the value of their assigned collateral exceeds the principal amount of the bonds.

So far we have examined how carefully structured SPEs can reduce or even eliminate enforcement costs, and the assignment of a lien on specific assets of the firm can limit potential losses to debt holders in the event of bankruptcy. Although the SPEs used for securitization and synthetic leases are designed to be bankruptcy remote, a risk of bankruptcy, and the associated assignment costs of bankruptcy, remains.

The risk of bankruptcy may be much lower than lending to the parent firm directly, but the existence of debt creates an obligation that means default is still possible. Assignment (bankruptcy) costs necessarily exist because debt holders hold property rights in the firm that overlap with the property rights of equity holders, the residual claimants in the firm. Elimination of these assignment costs would require eliminating the overlapping claims of debt holders and equity holders to the assets of the firm.

Graff (1999) designs an alternate form of leverage that he terms “synthetic debt” which eliminates overlapping property rights in an SPE. Rather than financing an asset at the parent level, risk is partitioned through the creation of an SPE that (1) is bankruptcy remote by design and is thus similar to a synthetic lease SPE and (2) provides both

“synthetic debt” holders and “equity” holders with non-overlapping property rights in the asset.

In order to meet these objectives, Graff creates an *all-equity capital structure* for the SPE.<sup>23</sup> Whereas the parent company can have a complex capital structure with various forms of debt, all investors in the SPE hold a form of equity so that debt holders no longer actually hold a debt security issued by the SPE. Although the fixed-income security closely resembles a bond, it is a form of synthetic debt rather than actual debt. In the discussion that follows, we therefore replace the term “debt holder” with the term “fixed-income investor.” Similarly we also replace the term “equity holders” with the term “residual claimants.”<sup>24</sup>

As in the standard synthetic lease structure, the parent company leases an asset from the SPE, and the SPE receives a contractual stream of payments for the duration of the lease term. Unlike the synthetic lease structure where the lease payments are “passed through” the SPE to then be paid out as interest payments to the holders of SPE issued debt, the synthetic debt structure is designed so that fixed income investors directly receive the lease payments.

The synthetic debt structure achieves this goal by turning to property law, rather than contract law, to separate the ownership of the leased asset on a temporal basis into two distinct ownership interests.<sup>25</sup> For the duration of the lease term signed by the parent company with the SPE, fixed-income investors own a *term of years interest* in the leased

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<sup>23</sup> Synthetic debt should qualify for off-balance sheet treatment under FIN 45 and FIN 46R because it is an all-equity capital structure with no financial guarantee provided by the parent firm.

<sup>24</sup> The parent firm can retain the role of residual claimant in the SPE. This is equivalent to the parent firm holding the common equity in an SPE that finances the acquisition of an asset with debt.

<sup>25</sup> A real property interest of this type is known technically as a fee subject to a condition determinable.

asset, and the residual claimants own a *remainder interest* in the leased asset.<sup>26</sup> That is, the residual claimants have outright ownership of the asset upon the expiration of the lease.<sup>27</sup>

All lease payments received by the SPE belong to the fixed-income investors, as all property rights in the asset for the duration of the lease belong to the term of years interest. There is no longer any “pass through” of lease payments that are converted into interest payments by the SPE. As long as the parent company operates independently of bankruptcy court supervision, fixed-income investors receive regular payments until the simultaneous expiration of both the lease and the term of years interest in the leased asset. In the event that the parent company files for bankruptcy protection from its creditors, the parent company must either affirm or reject its lease with the SPE at an early stage of the bankruptcy proceedings. If it affirms its lease with the SPE, the parent company continues to make its regular lease payments and continues to use the leased asset. If the parent company rejects the lease, the parent company must surrender the asset to the SPE.

Fixed-income investors benefit compared to a conventional debt structure (including the synthetic lease structure) where debt holders would normally have a lien on the asset. In a conventional debt structure, debt holders receive no interest payments for the duration of the bankruptcy proceedings. In the synthetic debt structure, on the other hand, fixed-income investors gain control of the leased asset back from the parent

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<sup>26</sup> Instead of holding debt with a lien on the asset, fixed-income investors own securities that represent ownership of the term of years interest in the asset. Similarly, the residual claimant owns securities that represent ownership of the remainder interest in the asset. We assume that the SPE has been structured to eliminate enforcement costs at the time the SPE is organized. That is, the potential for conflict between the term of years interest (fixed-income investors) and the remainder interest (residual claimant) has been eliminated by constraining the operating, investment and financing decisions of the SPE.

<sup>27</sup> Upon the simultaneous expiration of both the lease and the term of years interest, the remainder interest has outright ownership of the asset which is also known as “fee-simple” ownership.

company more rapidly because they are the sole owners of the asset for the duration of the lease term.

When the SPE regains control over the leased asset under the synthetic debt structure, there are no overlapping property rights in the asset between fixed-income investors (“synthetic debt” holders) and residual claimants. Because the SPE has issued no debt, there is no conflict between debt holders and equity holders as in a conventional synthetic lease structure. If the asset can quickly be leased to a new user of the asset, then fixed-income investors have avoided not only the deadweight costs of the bankruptcy proceedings, but the asset is again generating income for the fixed-income investors with less delay.<sup>28</sup>

The creation a bankruptcy-remote SPE with an all-equity capital structure using term-remainder temporal separation of an asset under property law thus permits a new form of leveraged finance. The securities representing ownership of the term of years interest in the SPE are a form of synthetic debt that eliminates the assignment (bankruptcy) costs associated with traditional debt finance. This means that fixed income investors have a broader range of choices for structuring their property rights when lending to firms than is normally assumed. Leverage need not be synonymous with the use of debt.

## V. Conclusion

The organization of property rights *within* a firm is of critical importance to understanding the capital structure of a firm. Firms make active use of separate legal

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<sup>28</sup> The characteristics of the leased asset are of critical importance. The synthetic debt structure is most appropriate for an asset which can easily be redeployed to other users of the asset. Firm-specific assets, with little or no value to alternate users of the assets, mean that such assets represent poor collateral for *any* form of leveraged finance.

structures to partition risk and thereby reduce the Coasian transaction costs associated with the use leveraged finance. The complexity and ingenuity of the structures that are used to reduce the enforcement and assignment costs faced by lenders strongly suggests that such costs are non-trivial and represent binding constraints.

The traditional view of debt finance recognizes the use of covenants and collateral to protect the interests of debt holders, but such protections remain incomplete. As lenders increase the protection of their property rights through the use of covenants applicable at the parent level of the firm, they necessarily constrain the investment and financing options available to the firm. Firms must trade-off their ability to obtain debt financing at lower cost with more constraints (bank debt), or to accept a higher cost of funds in order to face fewer constraints (junk bonds). Credit ratings are of critical importance for firms accessing funds from institutional investors, and firms find their access to credit is reduced if their credit rating falls below investment grade.

The MM assertion that capital structure decisions of the firm are irrelevant holds for a world where there is no possibility of default. When corporate debt is risky and subject to the possibility of default, the ability of lenders to protect their property rights assumes critical importance. An important way in which firms provide greater protection to the property rights of lenders is by partitioning risk into separate legal structures. Rather than being a “neutral mutation” as viewed by Miller (1977), captive finance subsidiaries provide lenders with an implicit guarantee about the investment policy of the captive. The enforcement (agency) costs and assignment (bankruptcy) costs faced by lenders to captives are reduced, with the result that captives are permitted a

higher debt ratio by lenders without a reduction in credit rating compared to loans extended directly to the parent.

Structured finance and the use of SPEs for securitization and synthetic leases provides additional evidence of how firms partition risk more precisely and more completely to obtain leveraged finance at lower cost. Firms willingly incur the costs of establishing such specialized structures because the benefits to lenders of reduced enforcement and assignment costs are reflected in a lower cost of funds to the firm. In a carefully constructed SPE, the enforcement costs associated with the financing and investment decisions taken by the SPE can be sharply reduced, if not eliminated. Similarly, the assignment costs of bankruptcy can be sharply reduced when an SPE issues debt, although the existence of debt necessarily means that there remains the possibility of default. By using property law instead of contract law to structure the property rights for the financing of a specific asset, the use of an all-equity capital structure effectively eliminates the possibility of default.

In all cases, lenders face the underlying business risk when lending to a firm, whether at the parent level, to a captive finance subsidiary, or to an SPE. However, the financial risk faced by lenders can be altered by how the property rights of lenders are structured. Thus, in a world of risky corporate debt, we conclude that firm capital structure matters and therefore is a relevant decision variable for corporate managers.

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