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SALE-AND-LEASEBACK AGREEMENTS AND ENTERPRISE VALUATION

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The literature on leasing has generally concentrated on providing management with a selection criterion for the lease-versus-purchase decision; over the years, a variety of recommendations have been advanced ([1], [3], [6], [8], [16], and [18]). More recent papers, however, have shown that the terms of leasing contracts in a transaction-costless competitive capital market will inevitably be such as to render the stockholders of value-maximizing firms indifferent to that decision ([11] and [12]). Simply put, competition among potential lessors--together with the mandates of securities-price-equilibrating trading activities of investors in lessee and lessor firms--will necessarily drive the present values of the cash flows associated with lease arrangements to parity with direct asset purchase prices.

This conclusion has been seen to hold even in the presence of corporate leverage and income taxes ([11] and [12]) as long as the tax rates and asset depreciation possibilities of lessee and lessor firms are identical. The key to the latter result is a recognition of the fact that the borrowing power--and attendant tax savings--implicitly relinquished by the lessee firm, when lease obligations are assumed, is just matched by the augmented borrowing power simultaneously created for the lessor enterprise. In a competitive leasing market, these savings will be passed through to the asset-user firm in the form of lower lease payments, with the result that the present value of the contractual obligations again will equal the asset's (tax-adjusted) purchase price. Systematic institutional imperfections,[1] and differential transactions costs, thereupon provide the only basis for expecting material gains to be associated in practice with the lease-or-buy choice.

These matters, on the other hand, have been examined thus far entirely in

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[1] Including unequal opportunities on the part of lessor and lessee firms, due to deficiencies in the carry-forward and carry-back provisions of the corporate tax law, to take advantage of tax shields [14].

the context of the acquisition of *additional* assets by the lessee firm, wherein the decision is indeed whether to lease or buy. Our intent here is to consider instead the situation where the assets in question have previously been acquired and are currently being used in production, where the asset-user firm has a levered capital structure *already* in place, and where the managerial choice at issue is whether to enter into a sale-and-leaseback agreement for a particular subset of those existing assets. As will be shown, there are in such circumstances certain positive shareholder wealth effects to be exploited, independent of any market imperfections or tax considerations. Their origin lies in the fact that a sale-and-leaseback arrangement represents essentially a form of "beggar thy bondholder" capital structure manipulation.

I. Nature of the Arrangement

Although the sale-and-leaseback instrument may contain a variety of supplemental contractual provisions, the core of the arrangement is the transfer of the legal ownership of an asset or group of assets from the user enterprise to another firm at an agreed-upon price, subject to the advance stipulation that the assets will immediately be leased back for continued use, in return for a prearranged schedule of rental payments. As such, the transaction does not alter the underlying real investment and production situation of the asset-user (now lessee) firm, nor the distribution of its future cash operating earnings. Upon termination of the lease, any residual value of the leased assets acrues to the lessor.

The price at which the assets will be sold is open to negotiation between the parties to the agreement. It may or may not correspond to the prevailing second-hand market value of those assets. The sale-and-leaseback agreement may simply be viewed as a financing arrangement whereby the lessor firm advances funds in exchange for a contract promising a series of future cash flows. In that regard, the lessor's willingness to supply capital may well depend as much on the general creditworthiness of the lessee as on the collateral value of the specific assets whose titles are exchanged. Thus, in arriving at the final bargain on terms, the lessor firm should properly be characterized as buying a *package* of claims that includes a schedule of promised, but uncertain, lease payments plus an automatic priority claim to the uncertain terminal value of the leased assets. The credit extension involved, therefore, may in many instances be only partially "secured."

II. Valuation Effects

We shall examine the valuation consequences of sale-and-leaseback arrangements in the standard context of perfect securities markets wherein prices adjust immediately to new information, where--at least initially--there are no corporate income taxes, and where there are no costs associated with either voluntary liquidation of the firm or bankruptcy. Bankruptcy is defined as a situation in which the value of the firm's maturing fixed obligations, including its debt and lease commitments, exceeds the value of its assets--i.e., in which stockholders have a nominal negative equity position. Should such default occur, the firm's creditors assume ownership of the enterprise and may then decide either to liquidate it or to continue its operations. In a market setting of this sort, the Value-Additivity Principle will apply [17], and the aggregate market value of a firm will depend only on the character of the distribution of prospective *total* cash flows from its operations, regardless of the manner in which those flows are divided among the various categories of claimants thereto.

Thus, a firm with just two classes of securities outstanding--bonds and common stock--will command in the market a total value of

$$V = B + S \tag{1}$$

where B is the market value of the debt, and S the value of common shares. Imbedded in these respective prices will be investors' assessments of the likelihood and consequences of bankruptcy but, in the absence of any dead-weight bankruptcy costs, V will be independent of the particular financial structure which happens to have been adopted.

If, then, the corporation should decide to sell a portion of its assets to a lessor firm for the price A, under an arrangement whereby it agrees to lease back those same assets from their new owner, the user firm's investment and production posture is unaffected. In consequence, its operating earnings prospects remain intact, their total market worth will continue to be V, and the sale proceeds A become available for *immediate* cash distribution to security-holders. In return, of course, a new category of claimant (the lessor) to the cash flows which underlie V is introduced. In the market, those claims--a sequence of lease payments obligations and a terminal asset value--will command a price V_L determined by prevailing capital market appraisals of their risk attributes.[2] Whatever that assessment, the cash flows involved represent

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[2]The relevant factors include the possibility of asset-user firm bankruptcy prior to the maturity of the lease, the marketability of the leased assets in

a corresponding diversion from the original cash flow prospects of the lessee firm's bondholders and stockholders. Hence, by the value-additivity principle, the new aggregate market value of *their* claims will be

$$V' = V - V_L = S' + B' \tag{2}$$

where S' and B' denote the revised constituent equity and debt valuations.

Since, however, bondholders and shareholders will receive the asset-sale proceeds distribution A, their collective *total* wealth position pursuant to the sale-and-leaseback becomes (S' + B' + A). Obviously, in order for them not to be harmed by the transaction, it must occur that

$$S' + B' + A \geq S + B \tag{3}$$

which, from (2), requires that

$$S' + B' + A \geq V = V' + V_L = S' + B' + V_L \tag{4}$$

or, simply, that $A \geq V_L$. The management of a value-maximizing lessee firm, therefore, will not accede to a sale-and-leaseback arrangement unless the associated asset-sale price at least offsets the present (market) value of the future cash flows of the firm which are committed to the lessor. On the opposite side of the transaction, of course, the lessor firm cannot afford to pay more than V_L without subjecting *its* securityholders to a reduction in wealth. Accordingly, its decision rule will be that $A \leq V_L$, and thereby only one execution price, $A = V_L$, can satisfy both parties simultaneously. In a competitive capital market comprised of value-maximizing enterprises, sale-and-leaseback terms will be driven to this point, and in equilibrium the *aggregate* wealth of the lessee firm's stockholders and bondholders will be unchanged by the sale-and-leaseback agreement.[3]

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both the second-hand asset and secondary leasing markets, and any distinctive supplementary provisions--perhaps including renewal options--which are attached to the lease contract.

[3] A similar conclusion for new-asset leases is documented in detail in [11].

III. Allocation of the Valuation Effects

Within that aggregate, however, there can be a reallocation of values. In particular, if the proceeds of the asset sale to the lessor are distributed entirely to the stockholders of the lessee--either by a "special" cash dividend payment or through the repurchase of a portion of the corporation's previously-outstanding common shares--stockholders end up with a revised wealth position of (S' + A) and bondholders with B'. Consequently, stockholders will benefit from the sale-and-leaseback if the quantity (S' + A) exceeds the original S. Since, from (2), $V' + V_L = V$, we have that

$$S' + B' + V_L = S + B \tag{5}$$

and, if $V_L = A$ under the press of market competition,

$$(S' + A) - S = B - B' \; . \tag{6}$$

Thus, shareholders stand to gain from the transaction whenever--and precisely to the extent that--bondholders suffer a diminution in the market value of their holdings.[4]

As it happens, the market value of the bonds involved can only decline as a result of the sale-and-leaseback, as long as there is a finite probability of lessee-firm bankruptcy. The reason is that the sale-and-leaseback diverts to the lessor a priority claim to a segment of the cash flow prospects which originally belonged to bondholders. Because of this restructuring of claims, there are no circumstances in which the cash flows to bondholders can be greater after the transaction than before, and there will be some circumstances--notably bankruptcy--in which those flows will be smaller. Inevitably, then, B' will be less than B, due to market reaction to the altered bondholder position.

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[4] While equation (6) is perhaps most easily interpreted when the asset-sale proceeds are disbursed to stockholders in the form of a cash dividend payment, it obviously applies as well to the situation of share repurchase. In the latter case, the per-share price implications can also be identified. Thus, if the lessee firm initially has N common shares outstanding at a market price P per share, the number which can be retired with the sale proceeds A will be $\Delta N = A/P'$, where P' is the revised per-share price which will be attained as soon as the sale-and-leaseback and repurchase plans are announced by the firm. Hence, shareholder wealth can be expressed as

$$S' + A = P'(N - \Delta N) + A = NP' \; .$$

Substituting into (6) and rearranging yields

$$P' - P = (B - B')/N$$

indicating that the market price of the shares will increase, remain constant, or decrease depending upon whether the market price of the lessee firm's bonds decreases, remains constant, or increases.

This phenomenon can be demonstrated most readily by examining the cash flow distributions confronted by bondholders before and after the sale-and-leaseback, in a one-period setting. Consider first the situation in which, by the terms of the lease contract, the lessor's claims are rendered fully *senior* to bondholder claims. Prior to sale-and-leaseback, the distribution of end-of-period cash returns to bondholders--a random variable Y--is

$$'7) \qquad Y \begin{cases} Y^* & \text{if } X \geq Y^* \\ X & \text{if } X < Y^* \end{cases}$$

where X denotes the (random) end-of-period *total* cash value of the lessee firm, and Y* is the stipulated amount of bondholder claims. "Bankruptcy," of course, encompasses here the events X < Y*. Following sale-and-leaseback, however, the lessor will be owed a prescribed lease payment L and hold claim to the random terminal value R of the leased assets. Having seniority, both these claims must be satisfied before those of bondholders. Accordingly, the revised distribution of bondholder cash returns becomes

$$(8) \qquad Y' \begin{cases} Y^* & \text{if } X \geq Y^* + L + R \\ X - (L+R) & \text{if } Y^* + L + R > X \geq L + R \\ 0 & \text{if } X < L + R \end{cases}$$

and this distribution is strictly inferior to that of (7). That is, subtracting (8) from (7), we find that

$$(9) \qquad Y-Y' \begin{cases} 0 & \text{if } X \geq Y^* + L + R \\ Y^*-[X-(L+R)] & \text{if } Y^*+L+R > X \geq \max(Y^*,L+R) \\ \min(Y^*,L+R) & \text{if } \max(Y^*,L+R) > X \geq \min(Y^*,L+R) \\ X & \text{if } X < \min(Y^*,L+R) \end{cases}$$

where max(Y*,L+R) denotes the larger of Y* and L+R, and min(Y*,L+R) the smaller of the two quantities. Since each element of (9) is either zero or positive, the array of pre-sale-and-leaseback cash flow prospects for bondholders dominates the post-transaction array. The associated claim B' therefore will necessarily be priced below B in the market as soon as the sale-and-leaseback plan, and the intent to distribute the asset-sale proceeds A to shareholders, is announced to investors by the lessee firm.

A milder--and perhaps more common--circumstance would be one in which the promised lease payments to the lessor had *equal* standing with bondholder claims. Were that the case, the post-sale-and-leaseback distribution of bondholder cash returns would be

$$(10) \qquad Y'' \begin{cases} Y^* & \text{if } X \geq Y^* + L + R \\ [Y^*/(Y^*+L)](X-R) & \text{if } X < Y^* + L + R \end{cases}$$

given that the leased-asset residual value R will accrue to the lessor as legal owner of the assets in any event, and all other end-of-period cash flows will be shared by the lessor and the bondholders in proportion to the magnitudes of their respective stated claims, if the total flows are less than those aggregate claims. Subtracting (10) from (7), we have

$$(11) \qquad Y - Y'' \begin{cases} 0 & \text{if } X \geq Y^*+L+R \\ [Y^*/(Y^*+L)](Y^*+L+R-X) & \text{if } Y^*+L+R > X \geq Y^* \\ (LX+RY^*)/(Y^*+L) & \text{if } X < Y^* \end{cases}$$

which establishes again that the post-sale-and-leaseback prospects for bondholders are dominated by the preagreement ones, pursuant to the (now) pro-rata allocation in bankruptcy, to the two claimants, of all but the asset terminal value R portion of the lessee firm's end-of-period cash flows.

Finally, even if the contractual lease payment commitments were completely *subordinate* to bondholder claim, the lessor's clear ownership of the leased assets themselves would still render bondholders worse off than before. In that context, the post-sale-and-leaseback cash flow distribution for bondholders would be just

$$(12) \qquad Y''' \begin{cases} Y^* & \text{if } X \geq Y^* + R \\ X - R & \text{if } X < Y^* + R \end{cases}$$

which circumstance is also inferior to that prevailing before the lease arrangement, since the difference in the two distributions

$$(13) \qquad Y - Y''' \begin{cases} 0 & \text{if } X \geq Y^* + R \\ Y^*-(X-R) & \text{if } Y^* + R > X \geq Y^* \\ R & \text{if } X < Y^* \end{cases}$$

consists, as in the two situations above, only of nonnegative elements for all possible values of the lessee firm's uncertain end-of-period cash flow X.

Regardless of the relative priority standing of the lease payments involved, then, preexisting bondholders will be subjected by the sale-and-leaseback to a diminution in their cash flow recovery opportunities in the event of lessee-firm bankruptcy. As long as there is any possibility the latter may occur--and, indeed, the likelihood can only be increased by the introduction of the additional fixed claims of the lessor--the consequent poorer position of bondholders must be manifest in a reduction in the market price of their securities. That loss, B - B', generates a corresponding gain for the lessee firm's stockholders, as established in equation (6), and sale-and-leaseback transactions therefore should be engaged in to the fullest extent possible by a management whose objective is shareholder wealth maximization.

IV. Further Considerations

While the analysis above was cast in a single-period framework, extension to the multiperiod case is straightforward. The distribution of cash flows available to bondholders, before and after sale-and-leaseback, need only be formally identified for each of the relevant periods in the manner of equations (7) through (13). Given the claim-priority pattern at issue, a series of comparisons which are the counterparts of the one-period analysis must inevitably emerge. The lessor's ownership of the leased assets--and thereby seniority of claim to the asset residual value R--will undermine the original bondholder cash return distribution throughout. The one added dimension is an "option" possibility on the part of the bondholders. Should the lessee firm in fact default on its fixed obligations at some point, bondholders could--if they chose--elect to buy out the lessor's claims and continue to operate the firm in hopes of recovering their losses in subsequent periods.[5] Their decision, presumably, would be based on their appraisal of the relationship between the going-concern value of the firm, and its then-liquidation value. Since a perfect capital market does not necessarily imply a perfect real-goods market, bondholders might in certain circumstances find it advantageous to reorganize and resurrect, rather than dismember, a bankrupt company. Even if this should be the decision, however, the bondholders will be required to pay the lessor for the latter's claims to the assets of the firm--and this cash outflow represents a burden that would *not* have been incurred in the absence of sale-and-leaseback. Accordingly, the overall position of bondholders remains inferior to that which prevailed prior to the lessor's presence, and our valuation conclusions are unchanged.

The corporate income tax--which we have thus far ignored--may also affect the desirability of the transaction. Two such influences are of potential concern: (1) the role of corporate leverage and its associated tax-subsidy implications; (2) asset depreciation schedules. While the first of these can be seen to be neutral in its impact on sale-and-leaseback benefits, the second may provide an additional source of possibilities to realize share price gains.

The argument with regard to leverage is quite simple--and it has been developed in sufficient detail in the recent leasing literature ([11], [12], and [14]) as to require only a synopsis here. The assumption by a firm of a set of fixed-charge obligations under a lease contract will unquestionably have an unfavorable effect on the firm's other borrowing opportunities, when bankruptcy can occur, because it lowers the margin of protection for other creditors.

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[5] An analogous interpretation of the prerogatives of *equity* ownership is contained in [2].

Thus, any lease commitments will imply a reduction in subsequent debt capacity for the lessee, given an unchanged production and investment plan for the firm, and thereby a sacrifice of the valuation benefits which--according to all received doctrine ([5], [7], and [13])--will attend leverage in an environment where interest payments are tax-deductible.

On the other hand, this sacrifice is offset by a precisely equivalent enhancement of borrowing power for the lessor, since that enterprise is the recipient of the same set of fixed-charge promises, emanating from the same set of unchanged lessee-firm operating cash flows. In a competitive capital market free of transaction costs, lenders will thereupon be encouraged to accommodate the lessor with higher loans to the same degree that they are led to refrain from accommodating the lessee. Consequently, the relevant leverage (tax) benefits will be transferred intact to the lessor, enabling that firm to reduce its quoted sale-and-leaseback terms.[6] If competition among lessors is strenuous, then, the reduction will reach the point where it exactly compensates the lessee firm for the leverage valuation penalty the latter incurs. Indeed, unless it does, the securityholders of the lessee will suffer from the transaction--and its management will not accede to the terms [11]. Debt capacity tax considerations, therefore, do not alter the basic character of the sale-and-leaseback bargain, simply because the associated effects are symmetrical for the two parties involved.

Although the tax implications of asset depreciation charges may not be so conveniently neutral, they should if anything act to augment the profit potential of sale-and-leaseback. When assets are sold to a lessor, the lessee firm relinquishes--but the lessor obtains--the assets' amortization deductions against taxable earnings. If the assets are sold at their then-*book* value, the deductions acquired by the lessor will match those originally claimable by the lessee. The total reported income, and tax payments, of lessor and lessee combined will thus be unchanged from the levels that would have prevailed without sale-and-leaseback. Because total cash flows to securityholders will also be unchanged, so will aggregate security values. A value-maximizing lessee firm management thereupon will not accept lease terms that do not recapture the worth of the lost depreciation tax savings, and competition among lessors will induce them to respond to the commensurate tax benefits they acquire. In short, the "transfer" argument above for debt capacity tax impacts can again be applied;

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[6] Assuming that both lessee and lessor confront the same marginal corporate income tax rate. The lease payments, of course, are fully tax-deductible for the lessee and taxable to the lessor, rendering their tax influences identical as well.

equilibrium transaction terms should be unaffected.

There may, on the other hand, be possibilities for the clever design of the transaction--at a purchase price, A, for the assets involved which is *different* from book value--so as either to increase the size, or accelerate the timing, of the available aggregate tax deductions.[7] There is, as we have noted, no mandate that the lessor acquisition price be aligned with the assets' second-hand market value, much less with their book value. The tax rules which are imposed in such circumstances, however, are both complex and subject to frequent revision. Consequently, a detailed exploration seems beyond the needs of the present discussion. It suffices to recognize that the presence of the IRS as a third-party participant in the depreciation-related cash flows at issue may conceivably offer an additional source of gain to the other two parties, by relaxing for them the inherently zero-sum properties of the no-tax situation.[8] If so, enlightened lessee and lessor managements will exploit that source whenever they can.

V. Commentary

Whatever supplemental role these tax peculiarities may play, they are distinctly secondary to the fundamental sharesholder valuation benefits of sale-and-leaseback identified above, which in no way depend upon taxes or any institutional rigidities. Those benefits, in fact, fall within a general class of phenomena having to do with the adequacy--or, more accurately, inadequacy--of the "me-first" covenants in corporate borrowing arrangements ([5], and [9]). If the promises made to a firm's existing creditors--i.e., all securityholders whose claims are senior to those of owners--do not contain provisions that preclude a subsequent weakening of such claims via promises to *other* creditors, there is an opening for management to take advantage of that oversight. In the case at hand, the opportunity to engage in sale-and-leaseback transactions represents an implicit option to sell off a portion of (the value of) the enterprise to a new claimant (the lessor), precisely by selling it out from under the imperfectly-protected original senior claimants, and distributing the proceeds to shareholders. From the latter's standpoint, at least in a transaction-costless

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[7] To the extent that the lessor is better able to claim those deductions against taxable income--due perhaps to less than fully effective tax-loss carry-over provisions for lessee firms in loss positions, for example--additional net tax savings may arise [14].

[8] Differences between lessee and lessor tax *rates*, obviously, would constitute a ready basis for tax-reducing transactions [11].

environment, that option should simply be exercised whenever possible. The key to sale-and-leaseback in this regard, clearly, is the fact that even though the lease payment commitments involved may not by contract be able to be accorded priority over bondholder claims, the transfer to the lessor of the ownership of the leased assets automatically conveys seniority of claim to *their* residual value. Bondholder cash-recovery prospects in bankruptcy must therefore suffer to that extent, the market price of their securities must fall in response, and shareholders will reap a corresponding gain.

The logical complementary question, of course, is whether a management which seeks to maximize shareholder wealth should, as a strategy, deliberately attempt to issue bonds that contain weak "me-first" protective covenants, hoping eventually to exploit those deficiencies. The answer is not necessarily affirmative. From the lender's *ex ante* perspective, the possibility that the debtor firm may in the future enter into a sale-and-leaseback agreement adds an extra element of risk to the loan. In a competitive capital market, prospective bondholders can be expected to demand compensation for bearing that risk, as part of the original loan bargain. Accordingly, shareholders should have to pay an appropriate (fair) *ex ante* price to obtain a latent sale-and-leaseback option--through a higher interest rate on bonds with weak covenants, for example--and they should be no better off in the long run than with borrowings that *are* well protected.

Such an "indifference" view, however, does rest on the assumption that indenture provisions and sale-and-leaseback agreements are costless undertakings. In practice, neither can be accomplished without some expense. At the time of a bond issue, the borrower firm should select the combination of indenture features for which the present value of transaction costs is least. Since these costs, and those of sale-and-leaseback, may well vary across firms, some companies will choose to include strong restraining covenants in their loan contracts and some will not.

VI. Conclusions

Our analysis, on the other hand, addresses the *ex post* question of the impact of sale-and-leaseback on shareholders when such arrangements are *not* prohibited by the terms of existing debt instruments. We conclude that shareholder interests in that circumstance are best served by making full use of leaseback possibilities. In effect, the option to do so is likely to have been imbedded as part of the price of the initial bargain with bondholders, and management would be remiss not to follow up to obtain for equity securityholders the compensating benefits, by exercising the option. At least in a perfectly-competitive

capital market, taxes will not diminish--and may actually augment--those benefits. Whatever then may be the influence of market imperfections, and transactions and bankruptcy costs, their effects will necessarily be overlaid on the central valuation phenomenon identified here. We therefore regard that phenomenon as the proper point of departure for further, richer treatments[9] of the sale-and-leaseback transaction.

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[9]Among which would be consideration of the optimal *timing* of sale-and-leaseback in a multiperiod framework, utilizing the backward optimization techniques of dynamic programming. Solutions to the analogous problem of optimal bond refunding timing have been formulated by Elton and Gruber [4], Kraus [10], and Pye [15].

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