THE DETERMINANTS OF YIELDS ON FINANCIAL LEASING CONTRACTS*

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This study tests hypotheses about the valuation of leasing contracts. We examine the determinants of the yields of a relatively large, reasonably heterogeneous, and nationally representative sample of financial leases. We find lease yields to be significantly related to treasury bond yields and our proxies for the systematic risk of the leased asset's residual value and the transaction and information costs associated with the lease. There is also some evidence of a relationship between lease yields and the default-risk of the lessee.

1. Introduction

Theoretical developments in the valuation of corporate leasing contracts have proceeded at a more rapid rate than their empirical counterparts. The differential pace in the evolution of theory and evidence is readily explained by the lack of an easily accessible, large-scale data base containing the terms of corporate leasing arrangements. As a consequence, those few empirical studies that have been undertaken tend to be limited in their generality by the

relatively small and/or regionally concentrated samples analyzed.[1] In addition, these initial empirical studies have advanced knowledge by reporting the descriptive characteristics of their samples rather than by examining the consistency between data and theory. While these studies have increased our understanding of the leasing market, they do not test specific hypotheses about the valuation of corporate leasing contracts.

In this paper we expand on earlier investigations of the terms of leasing contracts by analyzing the determinants of the yields of a relatively large, reasonably heterogeneous, and nationally representative sample of financial leases. We also test specific hypotheses about the valuation of leasing contracts.

Our investigation begins within the context of the theoretical models of Miller and Upton (1976) and McConnell and Schallheim (1983). Using the Sharpe–Lintner single-period capital asset pricing model, Miller and Upton (1976) demonstrate that the yield of a single-period lease is related positively to the current risk-free rate of return and negatively to the covariance between the market rate of return and the leased asset's rate of economic depreciation. McConnell and Schallheim (1983) combine the single-period results of Miller and Upton with the multi-period valuation techniques of Rubinstein (1976) and Geske (1977) to develop a multi-period model for the valuation of financial leases. Their analysis indicates that the equilibrium yield of a financial lease is related positively to the multi-period risk-free rate of interest and related negatively to the discounted value of the covariance between a 'market factor' and the logarithm of (one-minus) the leased asset's rate of economic depreciation. In our empirical analysis, the yields on financial leasing contracts are consistent with the predictions of the theoretical models of Miller and Upton and McConnell and Schallheim.

Miller and Upton and McConnell and Schallheim conduct their analyses within the confines of a perfect capital market setting in which leases are default-free. Once the assumptions of a perfect capital market and default-free leases are relaxed, the role of transaction costs, information/search costs, and default risk must be considered. As a consequence, we enter other possible explanatory variables iteratively into the regression analysis. Our proxies for transaction and information/search costs are statistically significant, whereas the results using our proxies for default risk are mixed. In addition, our analysis produces several interesting empirical by-products that support and complement earlier descriptive studies of the leasing market.

The paper is organized as follows. In sections 2 and 3 we recapitulate the essentials of the theoretical analysis of Miller and Upton and McConnell and

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[1] The only two studies of lease yields that we know of are Sorenson and Johnson (1977) and Crawford, Harper and McConnell (1981). Both provide descriptive statistics for their samples and regress the lease yields against a number of independent variables.

Schallheim and spell out hypotheses to be tested. The data-collection procedure and the sample are described in section 4. Section 5 reports the results of our regression analysis. In the final section we summarize the results and provide some concluding remarks.

2. A model of financial lease valuation

In this paper we are concerned with the valuation of financial leasing contracts. Under a financial lease, the lessee is obligated to make all rental payments agreed upon under the terms of the lease. At the maturity date of the lease, the residual value of the leased asset reverts to the lessor, who can release or sell the asset to a third party, or, perhaps, use the asset internally. In a single-period capital asset pricing model framework, Miller and Upton (1976) demonstrate that the equilibrium rental payment on a single-period financial lease can be expressed as

$$L_{it} = \left[R_f - \beta_{it} \left[\overline{R}_m - R_f \right] + \overline{d}_{it} \right] A_{it},$$ (1)

where L_{it} is the equilibrium rental payment for the use of asset i over t; A_{it} is the beginning-of-period market value of asset i; R_f is the current risk-free rate of interest; $\overline{R}_m$ is the expected rate of return on the market portfolio; $\overline{d}_{it}$ is the expected rate of economic depreciation of asset i during period t; and $\beta_{it} = \text{cov}(\tilde{d}_{it}, \tilde{R}_{mt})/\text{var}(\tilde{R}_{mt})$ is the standard capital asset pricing measure of the relative non-diversifiable risk of asset i in period t. $\text{Cov}(\tilde{d}_{it}, \tilde{R}_{mt})$ is the covariance between the asset's rate of economic depreciation and the market return in period t and $\text{var}(\tilde{R}_{mt})$ is the variance of the market return in period t.

Thus, the equilibrium rental must compensate the owner of the asset (i.e., the lessor) for (1) the capital invested in the asset at the risk-free rate ($R_f \cdot A_{it}$), (2) the expected loss of capital due to expected depreciation ($\overline{d}_{it} \cdot A_{it}$), and (3) the non-diversifiable risk borne. Because the rental payment itself is risk-free, the risk borne by the lessor is the risk associated with the uncertain end-of-period residual value of the asset. This risk is captured by the term $-\beta_{it}[\overline{R}_m - R_f] A_{it}$. (The negative sign of β_{it} results because the change in asset value is measured as capital depreciation rather than capital appreciation.)

When (1) is converted to yield form, it is equivalent to the standard capital asset pricing model (CAPM) relationship

$$\bar{y}_{it} = R_f - \beta_{it} \left[\overline{R}_m - R_f \right].$$ (2)

The expected yield on the lease, $\bar{y}_{it}$, is a positive function of the current single period risk-free rate of interest and a negative function of the leased asset's non-diversifiable residual-value risk.

McConnell and Schallheim (1983) employ Rubinstein's technique for valuing risky cash flows to extend the Miller and Upton analysis to a multi-period framework. In this framework, the equilibrium yield of an N-period financial lease again is a function of the multi-period risk-free rate of interest and the non-diversifiable end-of-lease risk associated with the residual value of the asset. Because the lease is assumed to be default-free, however, only the discounted value of residual-value risk is relevant to the determination of the rental payment. To illustrate, the equilibrium condition for a multi-period non-cancellable financial lease can be written as

$$A_{i0} = \sum_{t=0}^{N-1} \frac{L_{it}}{\left(1 + R_f\right)^t} + S_{i0}^N, \tag{3}$$

where S_{i0}^N is the current market value of the residual value of the leased asset at the maturity date of the lease (i.e., at time N). From McConnell and Schallheim, the residual-value term can be rewritten as

$$S_{i0}^N = \frac{\lambda_i^N A_{i0}}{\left(1 + R_f\right)^N}, \tag{4}$$

where $\lambda_i = (1 - \bar{d}_i)e^{\mathrm{cov}(l, y)}$, $\bar{d}_i$ is the expected rate of economic depreciation of leased asset i, and $\mathrm{cov}(l, y)$ is the covariance between the log of one minus the random rate of economic depreciation of the asset l and a random 'market factor' y.[2] In this analysis, the risk-free rate, the expected rate of economic depreciation, and the covariance term are assumed to be constant over time, so the time subscript can be omitted. Thus, as in the single-period case, risk enters into the determination of the equilibrium rental rate of a financial lease only because the end-of-lease residual value of the asset is uncertain. Furthermore, only the non-diversifiable risk associated with the asset's residual value is relevant to the determination of the rental payments on the lease. However, because the lessor bears the residual-value risk only at the termination of the lease, only the discounted value of residual-value risk is relevant to the determination of the rental payment L_i.

To calculate the yield of a multi-period lease, (3) can be written as

$$A_{i0} = \sum_{t=0}^{N-1} \frac{L_i}{\left(1 + y\right)^t} + \frac{\bar{S}^N}{\left(1 + y\right)^N}, \tag{5}$$

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[2] The term $\mathrm{cov}(l, y)$ can be interpreted as $\mathrm{cov}(l, y) \doteq \mathrm{cov}(-\tilde{d}_i, -\tilde{R}_m) = \mathrm{cov}(\tilde{a}_i, -\tilde{R}_m) = -\mathrm{cov}(\tilde{a}_i, \tilde{R}_m)$, which is approximately equal to the negative of the traditional measure of an asset's systematic risk ($\tilde{a}$ represents random 'appreciation').

and solved iteratively for y, where $\bar{S}^N$ is the expected residual value of the leased asset at time N and the lease payment L_i is constant across time. Because L_i is a positive function of R_f, the yield on the lease is also a positive function of R_f. Furthermore, because L_i is a negative function of covariance risk, y is also a negative function of covariance risk. However, this term could have been stated in terms of capital appreciation, in which case L_i would be a positive function of non-diversifiable residual-value risk.

Our primary objective is to test the hypothesis of Miller and Upton and McConnell and Schallheim that yields of financial leases are a function of the risk-free interest rate and the discounted value of the covariance risk of the asset's residual value. However, other hypotheses are tested as well.

3. Other hypotheses

Two important assumptions underlie the Miller and Upton and McConnell and Schallheim analyses. The first is that capital markets are perfect. The second is that financial leases are default-free. Once these assumptions are relaxed, the role of transaction costs, information asymmetries, and default risk must be considered.

In a lease, transaction costs are the per-unit costs of writing the contract, specifying the security agreement, identifying the asset, negotiating the terms of the lease, and so forth. Most of these costs are fixed and independent of the characteristics of the lessee, the lessor, and the leased asset. Hence, transaction costs decline proportionately with the cost of the asset. These costs are recaptured over time by the lessor through periodic (level) rental payments. Thus, we hypothesize that lease yields are an inverse function of the value of the leased asset. To illustrate, assume a perpetual lease so that

$$y = \frac{L_i}{A_{i0}} \tag{6}$$

is the lease's yield in the absence of transaction costs. With a fixed transaction cost that is recaptured through periodic (level) rental payments over the life of the lease,

$$y = \frac{L_i^*}{A_{i0}} = \frac{L_i + c}{A_{i0}} = \frac{L_i}{A_{i0}} + \frac{c}{A_{i0}}, \tag{7}$$

where L_i^* is total periodic lease payment and c is the (unobservable) transaction cost recovered per period in the rental payment. L_i increases pro-

portionately as A_{i0} increases, so L_i/A_{i0} remains constant. However, because c is fixed, c/A_{i0} declines as A_{i0} increases and, therefore, y declines as A_{i0} increases. Thus, we hypothesize that the lease yield is inversely related to the cost of the leased asset. Furthermore, because c/A_{i0} approaches zero as A_{i0} becomes large, for leases on higher-priced assets, transaction costs will be a less significant component of the lease yield, and, for leases on lower-priced assets, transaction costs will be a more significant component of the yield.

When the potential for default is admitted, information asymmetries also are relevant. When the lessor has perfect information about the financial condition of the lessee, lease yields accurately reflect lessees' default potential and lease yields will be related negatively to the lessee's financial condition. In the absence of perfect information, the lease yield will be a negative function of the lessee's financial condition and it also will be related negatively to the quality of information about the lessee. In the spirit of Akerlof (1970), in the absence of reliable information, the lessor will assume the worst and the lease yield will be commensurately high. Thus, we hypothesize that lease yields will be related negatively to the financial condition of the lessee and to the quality of information about the lessee.

In our empirical analysis, we do not have a precise measure of information quality. However, assuming that the 'size' of the firm is a reasonable proxy for 'prominence', we employ the book value of the lessee's assets as a proxy for the availability of reliable information. Thus, we conjecture that lease yields will be related inversely to the book value of the lessee's assets.

We also do not have an accurate measure of the lessee's financial condition. However, as a proxy for this information, we employ several measures of default risk that prior literature reports to have predictive power in identifying corporate bankruptcies.

4. Sampling procedure and data description

4.1. Sampling procedure

To gather data for this study we accessed the files of seven non-bank leasing companies and one bank-owned leasing company. Four of the companies have their headquarters in the Mountain West, two are located in the Midwest, one is located in the Southwest, and one is on the West Coast. These eight firms allowed their files to be inspected under the condition that their customers not be identified or contacted and that their names not be revealed. Both currently open (i.e., active) and closed (i.e., completed) leases were accessed.

A random sample of 453 contracts was drawn for evaluation. Because of certain data requirements, only 363 of these contracts are usable in our

statistical analyses.[3] Of the 363 usable leases, 223 were open and 140 were closed contracts as of September 1982. All 363 usable leases are financial leases.

The information recorded for each lease includes the origination date of the contract, the geographic location of the lessee, the type and cost of the leased asset, the type and maturity of the lease, the date the lessor paid for the asset, the date and amount of any lease prepayments, the due dates and amounts of the periodic rental payments, the amount of any broker commissions paid to originate the lease, the residual value of the asset (as estimated by the lessor), and an indication as to whether the investment tax credit (*ITC*) was taken by the lessor or passed to the lessee. In addition, in those cases in which reliable financial information is available, various accounting data are taken from the lessee's application. Such data are available in reliable form for 82 of the 363 lease applications.

4.2. Data description

Data describing the sample are displayed in table 1. Panel A is a frequency distribution of the leases according to their contract initiation dates. The oldest lease was written in January 1973 and the most recent lease was written in June 1982. The lessees are located in at least 43 different states (for 41 leases, the state in which the lessee is located could not be identified). In each contract, the lessee is responsible for selection, acquisition, and maintenance of the asset and for paying associated property taxes and insurance premiums. All the leases are non-cancellable. At the maturity date of the lease, the residual value of the asset reverts to the lessor. If the lessee defaults, the lessor can repossess the asset, declare the remaining payments due and payable, and make claims for any deficiencies.

Frequency distributions of the leases categorized according to the cost of the leased asset and the term-to-maturity of the contract are contained in panels B and C, respectively. A frequency distribution of leases according to the general type of asset is contained in panel D. The assets are placed in 18 general categories. Panel E is a frequency distribution of the book values of the assets of the 258 lessee firms for which this statistic is available.

4.3. Covariance risk

According to the Miller and Upton and McConnell and Schallheim analyses, lease yields are a function of the covariance risk between the leased asset's

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[3] Of the 453 contracts, 55 are deleted because we can not identify the industry type of the leased asset and 35 are deleted because they are not financial leases. Of the 35 that are not financial leases, 21 are conditional sales contracts.

Table 1

Descriptive statistics characterizing the sample of 363 financial leasing contracts originated over the period 1973–1982.

A. Frequency distribution by origination date of the lease contract

Year of origination	Number of leases	Percent of total
1973	9	2.5
1974	17	4.7
1975	7	1.9
1976	11	3.0
1977	46	12.7
1978	28	7.7
1979	65	17.9
1980	65	17.9
1981	82	22.6
1982	33	9.1

B. Frequency distribution by cost of leased asset

Cost of asset	Number of leases	Percent of total
$10,000 or Less	134	36.9
$10,001 to $50,000	109	30.0
$50,001 to $100,000	25	6.9
$100,001 to $250,000	35	9.7
$250,001 to $500,000	18	4.9
Over $500,000	42	11.6

Maximum = $63,000,000   Mean = $636,690
Minimum = $1,000   Median = $19,396

C. Frequency distribution by term-to-maturity of the lease

Term-to-maturity (in months)	Number of leases	Percent of total
24 or fewer	9	2.5
25 to 36	89	24.5
37 to 48	28	7.7
49 to 60	151	41.6
61 to 72	8	2.2
73 to 84	42	11.6
85 to 96	18	4.9
97 to 108	1	0.3
109 to 120	10	2.8
Over 120	7	1.9

Maximum = 300 months   Mean = 61.3 months
Minimum = 11 months   Median = 60 months

D. Frequency distribution by type of leased asset

Type of asset	Number of leases	Percent of total
Aircraft	10	2.8
Auto repair equipment	12	3.3
Computers and processors	43	11.8
Construction equipment	35	9.6
Copy machines	30	8.3
Farm machinery	17	4.7
Food preparation equipment	16	4.4

Table 1 (continued)

Industrial laundry machines	8	2.2
Machine tools	28	7.7
Marine equipment	4	1.1
Medical equipment	19	5.2
Misc. electronic equipment	21	5.8
Motel & hotel furnishings	6	1.7
Office equipment	15	4.1
Office furniture	23	6.3
Railroad rolling stock	6	1.6
Telephone systems	20	5.5
Trucks and trailers	50	13.8

E. Frequency distribution by book value of the assets of the lessee firm for 258 firms for which data are available

Book value of lessee's assets	Number of leases	Percent of total
$250,000 or less	76	29.5
$250,001 to $500,000	36	13.9
$500,001 to $1,000,000	24	9.3
$1,000,001 to $2,000,000	25	9.7
$2,000,001 to $5,000,000	24	9.3
$5,000,001 to $10,000,000	26	10.1
10,000,001 to $25,000,000	11	4.2
$25,000,001 to $100,000,000	17	6.6
Over $100,000,000	19	7.4

Maximum = $8,972,000,000	Mean = $135,800,000	
Minimum = $5,000	Median = $845,000	

F. Frequency distribution by leased asset's unlevered beta estimated with manufacturer firms

Asset beta	Number of leases	Percent of total
0.500 or less	48	13.2
0.501 to 0.600	61	16.8
0.601 to 0.700	61	16.8
0.701 to 0.800	60	16.5
0.801 to 0.900	69	19.0
0.901 to 1.000	29	8.0
1.001 to 1.100	23	6.3
1.101 to 1.200	7	1.9
1.201 to 1.300	5	1.4

residual value and a market factor. If the rate of change in the asset's market value is expressed in terms of the rate of capital appreciation, the relationship between residual-value covariance risk and lease yield is positive. Ideally, this measure of market-value risk would be estimated with a time series of market prices of the leased asset. Unfortunately, consistent time series data on these asset prices are not available. As a consequence, in this study, two proxies for systematic residual-value risk are employed.

The first proxy (and the one on which we rely most heavily) uses a representative sample of firms whose primary (or exclusive) activity is manufacturing assets of the same general type as the leased asset. For example, for leases covering construction equipment, the representative sample includes American Hoist, Caterpillar Tractor, Clark Equipment, and Harnischfeger. The use of data from firms manufacturing the asset to estimate systematic risk assumes that the risk of the asset producer is closely linked with the risk of the asset being produced.[4]

For each representative firm, a market model beta is estimated as of the origination date of the corresponding lease using 60 previous monthly stock market returns taken from the Center for Research in Security Prices (CRSP) returns file. The value-weighted market index from the CRSP file is used to represent the market return. The beta for each firm is then adjusted according to the procedure described by Hamada (1969) to remove the effect of financial leverage. Specifically, each levered beta is converted to an unlevered beta by dividing by one plus the debt/equity ratio as reported by *Value Line* for the year-end prior to the origination date of the relevant lease. Finally, for each asset in the sample, these unlevered betas are averaged across producer firms to obtain an estimate of the leased asset's systematic residual-value risk. This procedure yields one beta estimate for each lease in the sample. A frequency distribution of the unlevered betas is given in panel F of table 1.[5]

The second proxy measure of residual value covariance risk involves the estimation of a market model beta for a portfolio of asset-user firms whose primary line of business relies heavily on the use of a particular category of leased assets. The procedure involved in estimating this proxy is identical to the procedure used to estimate the first proxy, with the only difference being the representative firms employed. Further discussion of this proxy variable is contained in section 5.2.

4.4. The calculation of lease yields and the role of taxes

In our statistical analysis, the dependent variable is the lease yield. In a competitive leasing market, the relevant yield to the lessor firm is the after-tax yield that is comparable to after-tax yields on alternative investment opportunities. A pragmatic argument against the use of after-tax yields is that it is not possible to estimate accurately the marginal tax rates of either lessee or lessor

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[4]A list of the representative firms in each category is available from the authors upon request.

[5]We recognize that our unlevered beta estimates are imperfect proxies for the asset's residual-value systematic risk. For example, we have not adjusted the unlevered beta for corporate taxes. We have not done so for two reasons. First, theoretically, the relationship between beta and taxes is unclear. Second, empirically, we are uncertain as to how to estimate each firm's marginal tax rate. Additionally, we have not adjusted unlevered beta for differing maturities of debt nor have we incorporated the lease liabilities of the representative firms. The imperfect nature of this proxy means that, barring some unknown source of spurious correlation, the tests are biased against rejecting the null hypothesis.

Table 2

Frequency distribution by lease yields for the sample of 363 leases originated over the period 1973–1982 computed according to the following equation:[a]

$$\frac{Cost - ITC}{(1+y)^{t_1}} = \frac{P(1-\tau) + SD}{(1+y)^{t_2}} - \frac{Com(1-\tau)}{(1+y)^{t_3}} + \sum_{x=4}^{np} \frac{L(1-\tau)}{(1+y)^{t_x}} + \sum_{t=q_1}^{q_n} \frac{D_t(\tau)}{(1+y)^t} + \frac{RV - SD}{(1+y)^{t_n}}.$$

Before-tax yield			After-tax yield		
Lease yield (% per year)	No. of leases	% of total	Lease yield (% per year)	No. of leases	% of total
9 or less	51	14.0			
9.1 to 12.0	37	10.2	6 or less	9	2.4
12.1 to 15.0	20	5.6	6.1 to 9.0	62	17.1
15.1 to 18.0	41	11.2	9.1 to 12.0	71	19.6
18.1 to 21.0	62	17.1	12.1 to 15.0	75	20.7
21.0 to 24.0	73	20.1	15.1 to 18.0	90	24.8
24.1 to 27.0	50	13.8	18.1 to 21.0	44	12.1
27.1 to 30.0	17	4.7	21.1 to 24.0	8	2.2
30.1 to 33.0	3	0.8	24.1 to 27.0	3	0.8
33.1 to 36.0	2	0.6	27.1 or more	1	0.3
36.1 to 39.0	3	0.8			
39.1 or more	4	1.1			
Minimum = 4.41%	Mean = 18.63%		Minimum = 3.49%	Mean = 13.40%	
Maximum = 45.30%	Median = 19.57%		Maximum = 29.0%	Median = 13.89%	

[a]Terms are defined as:

y:	before-or after-tax lease yield,
$Cost$:	original cost of the leased asset,
ITC:	investment tax credit if retained by the lessee in the after-tax yield calculations, zero in before-tax yield calculations,
P:	prepayments made on the lease,
SD:	security deposit on the lease,
Com:	brokerage commission paid on the lease,
L:	periodic lease payment,
D_t:	depreciation on the leased asset in period t,
RV:	residual value of the leased asset as estimated by the lessor,
τ:	corporate tax rate in after-tax yield calculations, zero in before-tax yield calculations,
$t_1, \ldots, t_n$:	number of days between time zero and the date of the respective cash flow,
$q_1, \ldots, q_n$:	quarterly intervals,
np:	the number of lease payments,
t_n:	the number of days until the maturity date of the lease.

firms. Because of this limitation, each of the regressions is estimated with both a before- and an after-tax yield. The two yields are computed by solving the following equation iteratively for y:

$$\frac{Cost - ITC}{(1+y)^{t_1}} = \frac{P(1-\tau) + SD}{(1+y)^{t_2}} - \frac{Com(1-\tau)}{(1+y)^{t_3}} + \sum_{x=4}^{np} \frac{L(1-\tau)}{(1+y)^{t_x}}$$

$$+ \sum_{t=q_1}^{q_n} \frac{D_t(\tau)}{(1+y)^t} + \frac{RV - SD}{(1+y)^{t_n}}, \tag{8}$$

where *Cost* is the original cost of the leased asset; *ITC* is the investment tax credit if retained by the lessor; *P* is the amount of any prepayments made on the lease; *SD* is any security deposit required on the lease; *Com* is the amount of any broker commission paid on the lease;[6] *L* is the periodic lease payment; D_t is the depreciation on the leased asset in period *t*; *RV* is the residual value of the leased asset as estimated by the lessor; and τ is a corporate tax rate. The time components $t_1, \ldots, t_n$ are the number of days between time zero and the date of the respective cash flow. Time zero is either t_1 or t_2, depending on which cash flow occurs earliest. The time components $q_1, \ldots, q_n$ represent quarterly intervals. The symbol *np* represents the number of lease payments and t_n is the number of days until the maturity date of the lease.

In calculating the before-tax yield, *ITC* and τ are both set equal to zero. In calculating the after-tax yield, *ITC* is set equal to the amount of the *ITC* if the investment tax credit is retained by the lessor and τ is set equal to the maximum corporate tax rate in use when the lease was originated.[7] Frequency distributions of the annualized lease yields are displayed in table 2.

The final data used in the analysis are government bond yields. As of the origination date of the lease, for each lease in the sample, the yield of the treasury bond with a maturity date closest to the maturity date of the lease was collected. This yield is used as a proxy for the risk-free rate of return.

5. Empirical results

5.1. Yield regressions

The results of the regressions are reported in table 3. The two panels of the table contain parallel sets of regressions. Panel A contains the results when the dependent variable is the before-tax yield; panel B contains the results when the dependent variable is the after-tax yield. The statistical results across the two panels are remarkably consistent.

In the first regression reported in each panel, the two independent variables are the yield of the treasury bond of the same maturity as the lease contract and the leased asset's discounted beta estimated with asset-manufacturing-firm stock returns. The discounted beta is calculated by discounting the asset's estimated beta with the yield of the treasury bond of the same maturity as the

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[6]Six of the lessor firms in the sample recorded some form of brokerage commissions. For those leases on which a brokerage commission was paid, the average commission (i.e., finder's fee) was 1.6% of the cost of the leased asset.

[7]For leases initiated before 1979, the maximum corporate tax rate of 48% is used. For leases originated after January 1, 1979, the maximum corporate rate of 46% is used. In addition, in computing after-tax yields it is necessary to make some assumption about the appropriate depreciation schedule. For leases beginning prior to 1981, double-declining balance depreciation for the life of the lease is used. For leases initiated after January 1, 1981, the accelerated cost recovery system is used. The tax benefits of depreciation are assumed to occur quarterly.

Table 3

Regressions of lease yields on various independent variables for a sample of 363 leases originated over the period 1973–1982; t-statistics in parentheses.[a]

	Intercept	T-bond	D-beta	Var	U-beta	1/Cost	1/BV	Profit	Lev	Liquid	R^2	F	N
	A. Regression coefficients with the before-tax lease yield as the dependent variable												
1.	-2.89 (-1.76)	1.19 (11.45)	19.55 (9.05)								0.33	89.6	363
2.	-1.64 (-0.88)	1.16 (10.85)	20.38 (9.10)	-105.79 -1.40							0.34	60.5	363
3.	6.13 (3.64)	0.98 (8.67)			2.69 (1.53)						0.19	41.1	363
4.	-0.85 (-0.55)	1.09 (11.09)	14.01 (6.47)			133.51 (7.18)					0.42	85.3	363
5.	-0.96 (-0.54)	1.05 (9.31)	12.60 (5.05)			153.79 (6.05)	77.39 (3.46)				0.46	53.5	258
6.	-1.72 (-0.51)	1.12 (6.28)	14.31 (3.97)			183.09 (4.76)	347.35 (3.22)	1.09 (0.37)	-2.72 (-1.25)	-0.12 (-4.34)	0.65	19.2	82
	B. Regression coefficients with the after-tax lease yield as the dependent variable												
1.	2.27 (2.20)	1.17 (9.99)	8.08 (6.45)								0.27	65.3	363
2.	1.92 (1.64)	1.19 (9.81)	7.85 (6.02)	30.44 (0.63)							0.27	43.6	363
3.	5.75 (5.72)	1.07 (8.64)			2.17 (2.03)						0.19	42.4	363
4.	3.24 (3.46)	1.08 (10.14)	5.20 (4.43)			100.99 (9.07)					0.40	80.8	363
5.	3.54 (3.30)	1.04 (8.49)	3.72 (2.71)			115.33 (7.49)	49.09 (3.56)				0.44	49.0	258
6.	4.34 (1.98)	1.08 (5.30)	4.49 (2.17)			144.10 (5.90)	212.74 (3.03)	0.79 (0.42)	-3.26 (-2.30)	-0.06 (-3.42)	0.61	16.3	82

[a] Independent variables are:

T-bond: yield of the treasury bond with a maturity date closest to the maturity date of the lease, as of the initiation of the lease,

D-beta: leased asset's estimated beta discounted at the corresponding treasury bond yield,

Var: variance of return estimated for each asset's representative firms,

U-beta: leased asset's undiscounted beta.

1/Cost: inverse of the purchase price of the leased asset,

1/BV: inverse of the book value of the lessee's assets,

Profit: lessee's net income divided by total assets,

Lev: lessee's total debt divided by total assets,

Liquid: lessee's current assets divided by current liabilities.

lease contract. In panel B, the treasury bond yield is an after-tax yield calculated by multiplying the before-tax yield by one minus the maximum statutory corporate tax rate applicable at the origination date of the lease. This after-tax yield also is used to calculate the asset's discounted beta.

In each panel, the coefficient of the treasury bond yield is positive and statistically significant at the 0.01 level, with t-statistics of 11.45 and 9.99. In addition, in each panel, the coefficient of discounted beta is positive and statistically significant at the 0.01 level, with t-statistics of 9.05 and 6.45. These results are consistent with the predictions of Miller and Upton and McConnell and Schallheim.

It is also possible that discounted beta reflects a general risk measure associated with leases rather than a specific measure of non-diversifiable risk. To investigate this possibility, the variance of return is estimated for each leased asset's representative firms. The variance of return is estimated using the 60 monthly returns immediately preceding the origination date of the relevant lease. The variance of return is then entered as a third independent variable in the regressions. The results are reported as the second regression in the two panels of table 3. In each case, the coefficients and t-statistics of the T-bond yield and discounted beta are virtually the same as those in the first regression. In no case, however, is the coefficient of the asset's estimated variance difference from zero at any reasonable level of significance.

It is also possible that the statistical significance of discounted beta is not due to the importance of beta, per se, but rather to the fact that the beta discounting function uses the treasury bond yield of the same maturity as the lease. Independently, this variable is significant in explaining lease yields, and it may be that the discounting function merely captures an additional element of the effect of interest rates on lease yields. To examine this possibility, the regressions are re-estimated with two independent variables: the treasury bond yield and undiscounted beta. The results are reported as the third regression in each panel.

In both regressions, the magnitudes of the coefficients of the treasury bond yield are approximately the same as in the previous regressions and they are significant at the 0.01 level. As might be anticipated, however, even if Miller and Upton and McConnell and Schallheim are correct, the coefficients and t-statistics of undiscounted beta are substantially attenuated in comparison with those estimated for discounted beta. However, in the two regressions, the coefficients continue to be positive and significant at the 0.15 and 0.05 levels, respectively. Although the statistics are not as strong as when discounted beta is employed, the evidence is consistent with the contention that residual-value covariance risk is a determinant of financial lease yields.

To this point, our results are consistent with the prediction that lease yields are a function of the risk-free rate of interest and the discounted value of the non-diversifiable residual-value risk of the leased asset. Beyond that, we have argued that once the assumptions of perfect capital markets and default-free

leases are relaxed, lease yields also will be a function of the transaction costs associated with negotiating the lease, the availability of reliable information about the lessee, and the probability of default by the lessee. We further conjecture that the inverse of the value of the leased asset's purchase price can serve as a proxy for the transaction-cost effect in lease yields: that the inverse of the book value of the lessee firm's assets can serve as a proxy for the availability of reliable information about the lessee; and that various financial ratios of the lessee can serve as proxies for the probability of default by the lessee. The remaining regressions reported in table 3 are aimed at exploring these conjectures.

In the fourth regression in each panel, the independent variables are the treasury bond yield, discounted beta, and the inverse of the purchase price of the leased asset. In the fifth regression, the independent variables are the same as those in the fourth regression plus the inverse of the book value of the lessee's assets. (In the fifth regression, the sample size declines to 258 because we are not able to identify the book value of the assets of 105 of the lessees in the sample.)

In each regression, the coefficients of the treasury bond yield and discounted beta are positive and significant at the 0.01 level. In addition, the coefficients of the inverse of the purchase price of the leased asset and the inverse of the book value of the lessee's assets are positive and significant at the 0.01 level in each regression. If we assume that these variables capture the effects of transaction costs and asymmetric information in lease yields, the results are consistent with our hypotheses that the yields of risky leases are a function of the fixed cost of negotiating the lease and of the availability of reliable information about the lessee firm.

To test our hypothesis that the yields of risky leases are also a function of the financial condition of the lessee firm, three financial ratios – a profitability ratio, a leverage ratio, and a liquidity ratio – are added to the regressions. The profitability ratio is net income divided by total assets; the leverage ratio is total liabilities divided by total assets; and the liquidity ratio is current assets divided by current liabilities.

In a recent study, Ohlson (1980) reviews studies prior to his and uses variables identified by others in constructing a bankruptcy prediction model. He identifies four factors that are useful in predicting corporate bankruptcies: (1) the log of the total assets of the firm, (2) a leverage measure (total liabilities divided by total assets), (3) a measure of performance (either net income divided by total assets or funds provided by operations divided by total liabilities), and (4) a measure of liquidity (either working capital divided by total assets or working capital divided by total assets and current liabilities divided by current assets jointly).

We have already used total assets of the lessee in the regressions. The other variables we employ are dictated largely by data availability. To include a firm in the regressions using financial ratios, we require that its financial statement

be 'reliable'. Firms are omitted if their financial statements are incomplete or if data on the lease application are inconsistent with data on the firm's financial statements. Because of this requirement, the usable sample declines to 82 observations.

The sign of the coefficient of the profitability variable is predicted to be negative; the sign of the coefficient of the leverage variable is predicted to be positive; and the sign of the coefficient of the liquidity variable is predicted to be negative. The results of these regressions are reported in the sixth row in the two panels of table 3.

Several aspects of the results merit comment. First, in each instance, the coefficients of the treasury bond yield, discounted beta, the inverse of the asset's purchase price, and the inverse of the book value of the lessee's assets continue to be positive and significantly different from zero. These results support our hypotheses because they are little changed even though the sample has declined by more than 75 percent. Second, there is some evidence of a relationship between lease yields and the financial condition of the lessee firm. The coefficient of the liquidity ratio is negative as predicted and significant at the 0.01 level with t-statistics of -4.34 and -3.42. However, the other financial variables do not enter as statistically significant (except in one case), and the signs of their coefficients are the opposite of those predicted. Overall, though, we view the results as being remarkably supportive of the predictions of Miller and Upton and McConnell and Schallheim and of our ancillary hypotheses.

5.2. Regressions estimated with an alternative proxy for systematic residual-value risk

One troublesome aspect of our empirical analysis is the measurement of the leased asset's residual-value risk using data from firms that manufacture the leased asset. An alternative procedure is to identify a portfolio of firms whose primary line of business involves the use of the leased asset. For example, it seems reasonable to argue that the market value of American Airlines is highly correlated with the market value of aircraft.

The major disadvantage in the use of asset-user firms to estimate asset betas is that it is more difficult to identify single-asset-user firms than to identify single-asset-manufacturer firms. Nevertheless, for seven of the categories of leased assets, we have identified firms whose values are likely to be tied closely to one of the categories. The seven categories are aircraft, construction equipment, marine equipment, medical equipment, motel and hotel furnishings, railroad rolling stock, and trucks and trailers. These seven categories encompass 130 leases.

For each category, a portfolio of representative asset-user firms is identified. For each of the 130 eligible leases, an unlevered beta is estimated following the

same procedure used to estimate betas with asset-manufacturer firms.[8] The yield regressions are then reestimated. The results are reported in table 4. As before, the table contains two panels that report parallel sets of regressions: panel A employs before-tax yields; panel B employs after-tax yields. In addition, within each panel, two parallel sets of regressions (labeled USER and MNFR) are reported. Those labeled USER employ the asset-user betas; those labeled MNFR use asset-manufacturer betas. In each regression, the sample contains 130 leases.

The regressions are estimated with three sets of explanatory variables: (1) the treasury bond yield and discounted beta, (2) the treasury bond yield and undiscounted beta, and (3) the treasury bond yield, discounted beta, and the inverse of the purchase price of the leased asset.[9,10] First, in both panels, the coefficients, t-statistics and R^2's are similar between the pairs of USER and MNFR regressions. Second, in each case the coefficients of the treasury bond yield, discounted beta, and the inverse of the asset cost are postive and significant at the 0.01 level. Third, the coefficients, t-statistics and R^2's in table 4 are similar to those for the corresponding regressions estimated with the full sample in table 3. In sum, then, the regressions estimated with asset-user betas are consistent with our hypotheses.

5.3. A further look at the data

The descriptive statistics in table 2 indicate that the average before-tax lease yield of 18.63 percent is substantially above the yields of Aaa corporate bonds, which ranged from 7.15 percent to 15.49 percent over the period covered by this study. A natural question that arises is: Why would corporations raise capital by means of leasing arrangements when borrowing appears to be a much less expensive form of financing? One hypothesis is that only the largest corporate borrowers are able to issue publicly traded debt. If so, our argu-

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[8] Two tests were conducted to determine the degree of correspondence between asset-manufacturer and asset-user firms' betas. The first is a matched sample t-test. In this test, unlevered betas were computed over four non-overlapping time intervals for each asset-manufacturer and asset-user firm in the sample. The average unlevered beta was computed for each category of leased assets and the difference between the average unlevered betas estimated with the portfolios of asset-user and asset-producer firms was computed. A t-test indicates that the average difference in betas of 0.023 is not significant ($t = 0.048$). In the second test, a simple correlation was estimated between unlevered asset-user firms' betas and asset-manufacturer firms' betas. For $N = 26$, the simple correlation coefficient is 0.27 with $F = 1.89$. A list of the asset-user firms is available from the authors upon request.

[9] As in table 3, in the after-tax regressions the treasury bond yield is an after-tax yield and this after-tax yield is used to compute discounted beta.

[10] Regressions are not estimated with the lessee's asset value and the various financial ratios because the already reduced sample becomes so small and so heavily concentrated in a few industries that the results become meaningless.

Table 4

Regressions of lease yields on various independent variables for a sample of 130 leases originated over the period 1973–1982; *t*-statistics in parentheses.[a]

	Intercept	T-bond	D-beta	U-beta	1/Cost	R^2	F	N
A. Regression coefficients with the before-tax lease yield as the dependent variable								
1. USER[b]	−10.68	1.63	24.62			0.36	36.1	130
	(−3.33)	(8.16)	(5.86)					
MNFR[b]	−13.93	1.57	37.61			0.48	58.4	130
	(−5.00)	(9.21)	(8.40)					
2. USER	0.05	1.15		6.00		0.20	16.1	130
	(0.01)	(5.67)		(1.43)				
MNFR	0.71	1.05		6.93		0.21	16.6	130
	(0.23)	(5.26)		(1.69)				
3. USER	−6.84	1.40	14.58		509.62	0.53	48.2	130
	(−2.44)	(8.01)	(3.75)		(6.83)			
MNFR	−10.07	1.41	25.73		425.52	0.59	60.5	130
	(−3.92)	(9.15)	(5.75)		(5.85)			
B. Regression coefficients with the after-tax lease yield as the dependent variable								
1. USER	−2.71	1.63	11.21			0.34	32.4	130
	(−1.40)	(7.89)	(4.72)					
MNFR	−3.35	1.46	15.56			0.39	40.0	130
	(−1.92)	(7.89)	(5.85)					
2. USER	1.95	1.29		4.05		0.24	19.9	130
	(0.94)	(6.29)		(1.71)				
MNFR	3.23	1.19		3.11		0.23	19.2	130
	(1.89)	(5.82)		(1.33)				
3. USER	−0.64	1.41	5.83		354.91	0.60	63.8	130
	(−0.42)	(8.72)	(3.01)		(9.18)			
MNFR	−1.17	1.33	8.60		338.19	0.62	68.1	130
	(−0.83)	(9.07)	(3.82)		(8.76)			

[a]Independent variables are:

T-bond: Yield of the treasury bond with a maturity date closest to the maturity date of the lease, as of the initiation of the lease,
D-beta: leased asset's estimated beta discounted at the corresponding treasury bond yield,
U-beta: leased asset's undiscounted beta,
1 / Cost: inverse of the purchase price of the leased asset.
[b]*USER* indicates regressions estimated with user-firm betas and MNFR those estimated with manufacturer-firm betas.

ments suggest that the appropriate benchmarks are the yields on the largest leases issued by the largest lessees. Evidence on this point is presented in table 5.

Table 5 is a cross-tabulation of the lease yields less Aaa corporate bond yields taken from the *Federal Reserve Bulletin*. The entries in the table are averages of individual lease yields less the Aaa corporate bond yields during

Table 5

Cross-tabulations of average yield spreads for a sample of 258 leases originated over the period 1973–1982; cells contain the average of the individual lease yields less the yield of the Aaa corporate bond index as of the origination date of the lease (in each panel, the rows give the asset purchase price quartile and the columns give the book value of the lessee's assets quartile).

		Quartile of book value of lessee's assets[a]				Purchase price marginal[b]
		1	2	3	4	
A. Before-tax lease yield less the Aaa corporate bond yield (% per year)						
Quartile of purchase price of leased asset[c]	1	12.28 (33)	11.62 (22)	10.36 (6)	6.18 (4)	11.50 (65)
	2	11.61 (21)	10.06 (24)	8.96 (13)	10.19 (6)	10.36 (64)
	3	10.55 (9)	9.04 (16)	3.98 (19)	0.97 (21)	5.16 (65)
	4	−3.76 (1)	0.10 (3)	−1.08 (25)	−1.27 (35)	−1.17 (64)
Book value marginal		11.57 (64)	9.88 (65)	3.61 (63)	0.94 (66)	
B. After-tax lease yield less the after-tax Aaa corporate bond yield (% per year)						
Quartile of purchase price of leased asset[c]	1	10.87 (33)	9.74 (22)	10.71 (6)	6.20 (4)	10.19 (65)
	2	9.61 (21)	8.64 (24)	9.24 (13)	7.38 (6)	8.96 (64)
	3	9.00 (9)	7.90 (16)	4.41 (19)	3.10 (21)	5.48 (65)
	4	2.33 (1)	3.40 (3)	2.70 (25)	2.80 (35)	2.78 (64)
Book value marginal		10.06 (64)	8.59 (65)	5.33 (63)	3.52 (66)	

[a] Numbers in parentheses are the number of observations in each cell.

[b] Purchase price marginals are calculated as the average of the yield spreads for each purchase price quartile, where the first quartile includes the 25 percent of the leases with the lowest asset purchase prices, the second quartile includes the 25 percent of the leases with the next lowest asset purchase prices, and so on.

[c] Book value marginals are calculated as the average of the yield spreads for each lessee size quartile, where the first quartile includes the 25 percent of the leases with the smallest book value of lessee's assets, the second quartile includes the 25 percent of the leases with the next lowest book value of lessee's assets, and so on.

the origination month of the lease. Row categories are the purchase prices of the leased asset by quartile. Column categories are the book values of the lessee's assets by quartile. Panels A and B contain average spreads for the before-tax and after-tax yields, respectively. In computing the yield spreads in panel B, the Aaa bond yield was multiplied by one minus the maximum statutory corporate tax rate applicable at the origination of the corresponding lease.

In each panel, the largest yield spread is contained in the upper left-hand corner, which corresponds to the smallest assets leased by the smallest lessees. In both panels, the yield spread contained in the lower right-hand corner is the second smallest one in the panel. This cell corresponds to the largest assets leased by the largest lessees. (The smallest spread in each panel is contained in the lower left-hand corner, but this cell contains only one observation.) In addition, in each panel, the row marginals decline monotonically as the book value of the lessees' assets increases and the column marginals decline monotonically as the purchase price of the leased assets increases. In short, these results indicate that the 'cost' of leasing approaches the 'cost' of issuing debt for large corporations that lease large assets. If small corporations that lease small assets also face significant fixed costs in borrowing to finance their assets, then leasing is no more costly than borrowing, once the 'cost' of each is adjusted for transaction and information costs.

5.4. Lease yields and the role of taxes

One concern in the leasing literature has been whether the value associated with the tax shields generated by leasing arrangements accrues to the lessor or the lessee firm.[11] We have some indirect evidence on this point. For each of the leases in the sample, we determine whether the investment tax credit is retained by the lessor or passed through to the lessee.[12] If the leasing market is perfectly competitive, the value of the tax shield should accrue to the lessee, and after-tax (and after-*ITC*) yields should be indistinguishable regardless of whether the *ITC* is retained by the lessor or passed through to the lessee. That is, in those cases in which the *ITC* is retained by the lessor, the lease payments should be commensurately lower than when it is passed through to the lessee, but the after-tax (and after-*ITC*) lease yields should be indistinguishable.

To examine this issue, we estimate a regression that includes the treasury bond yield, discounted beta (estimated with the portfolio of asset-manufacturing firms), the inverse of the purchase price of the leased asset, the inverse of the lessee's book value, and the lessee's current ratio as independent variables. In addition, a dummy variable that takes on the value of 1.0 when the *ITC* is

[11] For discussions of the role of taxes in leasing, see, for example, Brealey and Young (1980), Lewellen, Long and McConnell (1976), Miller and Upton (1976), Myers, Dill and Bautista (1976), Schall (1974), and Smith and Wakeman (1985).

[12] For 122 of the contracts (i.e., 33.6% of the sample), the *ITC* was passed through to the lessee. In 185 contracts (i.e., 51% of the sample), the *ITC* was retained by the lessor. In the remaining cases, the *ITC* was not available for either party, usually because the asset was not a new piece of equipment. Of the leases in which the *ITC* was available, it was retained by the lessor 60.3% of the time. Strickney, Weil and Wolfson (1983) analyze the division of tax benefits associated with the purchase by General Electric Credit Corporation of over $1.5 billion in tax shields related to safe-harbor leasing contracts in 1981.

Table 6

Regressions of after-tax yields, with and without the *ITC*, on five independent variables plus an *ITC* dummy variable for a sample of 82 leases originated over the period 1973–1982; *t*-statistics in parentheses.[a]

Intercept	T-bond	D-beta	1/Cost	1/BV	Liquid	ITC	R^2	F	N
1. Regression with after-tax lease yield as the dependent variable									
0.89	1.14	5.75	130.65	253.77	−0.05	0.91	0.58	17.6	82
(0.42)	(5.46)	(2.62)	(5.43)	(3.71)	(−3.06)	(1.42)			
2. Regression with after-tax, but before ITC, lease yield as the dependent variable									
1.46	1.14	4.93	135.06	229.71	−0.06	−2.25	0.66	24.4	82
(0.74)	(5.86)	(2.42)	(6.03)	(3.61)	(−3.59)	(−3.78)			

[a]Independent variables are:

T-bond: yield of the treasury bond with a maturity date closest to the maturity date of the lease, as of the initiation of the lease,

D-beta: Leased asset's estimated beta discounted at the corresponding treasury bond yield,

1/Cost: inverse of the purchase price of the leased asset,

1/BV: inverse of the book value of the lessee's assets,

Liquid: lessee's current assets divided by current liabilities,

ITC: a zero-one dummy variable with the value of one if the lessor retains the investment tax credit.

retained by the lessor and a value of zero when the *ITC* is passed through to the lessee is included. The dependent variable in this regression is the after-tax lease yield. The results are presented in the first row of table 6. Consistent with a perfectly competitive leasing market, the coefficient of the dummy variable is not significant at the 0.05 level. It is, however, significant at the 0.10 level ($t = 1.42$), and the magnitude of the coefficient indicates that the average difference in the yields of the two groups is almost one percent (after adjusting for other factors).

As a further consideration of this issue, after-tax lease yields are recomputed assuming that the *ITC* is always passed through to the lessee. If lease terms are not adjusted to reflect the retention of the *ITC* by the lessor, these yields would be indistinguishable regardless of which party receives the credit. The second row of table 6 reports the results when the regression is re-estimated with the same variables as before, except that the dependent variable is the after-tax yield computed ignoring the *ITC*. In this case, the coefficient of the dummy variable is significantly negative ($t = -3.78$). This result indicates that the terms of lease contracts are adjusted according to which party receives the *ITC*. Because of the marginal significance of the coefficient of the dummy variable in the first regression, however, there remains some ambiguity as to whether the full value of the tax shield is passed through to the lessee firm, as would be predicted in a perfectly competitive market.

6. Summary and conclusion

Miller and Upton (1976) and McConnell and Schallheim (1983) present theoretical models of financial lease valuation in which the lease yield is a function of the risk-free rate of interest and the discounted value of the leased asset's residual-value covariance risk. To test this hypothesis, we compiled a sample of 363 financial leases originated over the period 1973 through 1982. Before- and after-tax lease yields are regressed against the yield of the treasury bond of the same maturity as the lease and a proxy for the discounted value of the leased asset's residual-value covariance risk. The coefficients of both variables are positive and statistically different from zero at conventional levels of significance. These results are consistent with the predictions of Miller and Upton and McConnell and Schallheim.

Additionally, we hypothesize that lease yields are a function of the transaction costs associated with negotiating and writing the lease, the quality and quantity of information about the lessee firm, and the default risk associated with the lessee firm. We further conjecture that: (1) the transaction costs associated with negotiating and writing the lease decline proportionately as the dollar value of the leased asset increases so that the lease yield is an inverse function of the cost of the leased asset; (2) the availability of reliable information about the lessee firm increases as the 'size' of the lessee increases so that lease yields are an inverse function of the book value of the lessee firm's assets; and (3) lease yields are a positive function of the default potential of the lessee firm. Three financial ratios are used as proxies for lessee default potential: (1) a profitability ratio, (2) a liquidity ratio, and (3) a leverage ratio. Additional regressions indicate that, in addition to the yield of the treasury bond of the same maturity as the lease and a proxy for the discounted residual-value covariance risk of the leased asset, lease yields are positively related to the inverse of the purchase price of the leased asset and the inverse of the book value of the lessee's assets and negatively related to the lessee's current ratio. We interpret these results as being consistent with our hypotheses. The failure of the other two financial ratios to enter significantly into the yield regression may be due to the inadequacy of the data or to the inability of these ratios to capture the default potential of lessee firms. These results do suggest that a further inquiry should investigate the predictability of lessee default.

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