Sale and Leaseback Transactions: The Case of Electric Utilities

R. Charles Moyer*
Wake Forest University

V. Sivarama Krishnan
Cameron University

This paper examines the rationale for, and empirical evidence of, sale and leaseback (SL) transactions by electric utilities. Generally cited motivations for utility sale and leaseback transactions are tax considerations, financial distress arguments, and the reduction of rate shock associated with placing new utility investments in the rate base. We examine 16 large sale and leaseback transactions that occurred between 1978 and the end of 1990. We find that most of the transactions are clustered in the 1985 to 1987 period and that many of the lessee firms are low or no tax firms. This suggests that tax considerations play an important role in motivating these transactions because tax law changes that took effect at the end of this period removed important incentives favorable to sale and leaseback transactions. We also find that most of the firms in the sample are financially weak, as represented by their low equity ratios, low Value Line safety rankings, low Value Line financial strength ratings, low Value Line tax rates, and declining bond ratings, all measured relative to industry averages. An event study analysis of the impact of sale and leaseback announcements by utilities shows no statistically significant impact. We find little support for the reduction of rate shock arguments. We attribute the concentration of sale and leaseback financing among the weaker firms in the industry to limited financing options open to these firms, the existence of less burdensome covenants associated with leasing versus borrowing for distressed firms, and the ability of these firms to sell the tax benefits of ownership to lessors who can use them.

INTRODUCTION

The use of financial leases in the electric utility industry is a relatively new phenomenon. Although direct lease financing of small portions of nonnuclear power plants and some other utility assets occurred in the 1970s, there was a significant change in the size and type of these transactions during the 1980s. For example, in 1985 the Public Service Company of New Mexico used the first sale and leaseback (SL) financing of a major transmission line. Nuclear and nonnuclear power plants also were refinanced with sale and leaseback transactions during the 1980s. Because of the cost recovery character of public utility regulation, sale and leaseback transactions among utilities may be motivated by factors other than the tax effects identified for industrial firms (Slovin, Sushka, and Polonchek, 1990a).

This paper examines possible rationales for lease financing by utility companies. To provide insight regarding the tax rationale for leasing, we consider the financial condition

* This research was supported in part by the Integon Research Fund at Wake Forest University. The authors appreciate helpful comments on earlier versions of this paper by participants in the Wake Forest Management Research Symposium and by the suggestions of the editor and three anonymous reviewers.

0747-5535/95/1500-0046 $02.50

and comparative tax rates of utility firms that have engaged in lease financing. We also provide evidence of bond rating changes following these transactions. The paper concludes that the use by utilities of sale and leaseback financing reflects the restricted range of financing options available to weaker firms, who often were not able to fully use the tax benefits of ownership that were available in the early to mid-1980s. This result is consistent with the bankruptcy cost theory of leasing advanced by Krishnan and Moyer (1994).

FINANCIAL LEASING: THEORY AND EVIDENCE

The theory of financial leasing traditionally has focused on the tax differential between lessees and lessors as a primary rationale for leasing (Miller and Upton, 1976; Lewellen, Long, and McConnell, 1976; Myers, Dill, and Bautista, 1976; Brealey and Young, 1980; and Brick, Fung, and Subrahmanyam, 1990). Empirical studies of leasing, however, report that lessors typically earn higher returns than do lenders. For example, Sorensen and Johnson (1977), Gudikunst and Roberts (1978), Roenfeldt and Henry (1979), Crawford, Harper, and McConnell (1981), and Schallheim, Johnson, Lease, and McConnell (1987) report high *ex ante* returns to lessors and, by implication, high lease rates paid by lessees. Lease, McConnell, and Schallheim (1990) document high realized returns to lessors on financial leasing contracts. These high lessor returns suggest factors in addition to tax effects in the lease-buy decision.

Lease financing often is evaluated as an alternative to debt financing. Surprisingly, Bowman (1980) finds a significant positive correlation between financial leverage and the use of lease financing, a result contradicting the assumption that leasing and debt financing are substitutes. Ang and Peterson (1984) also find that debt and lease financing are positively correlated, implying that debt and lease financing are complements, not substitutes. Marston and Harris (1988), Finucane (1988), Smith and Wakeman (1985), and Erickson (1990) develop explanations for these seemingly anomalous findings in terms of financial distress costs and asset characteristics. Krishnan and Moyer (1994) explain the positive relationship between debt and lease financing in terms of bankruptcy costs and asset characteristics.

Additional insight regarding the motivation for financial leasing has been obtained from an examination of the announcement period effects of corporate sale and leaseback transactions. Slovin, Sushka, and Polonchek (1990a) find positive announcement period effects for nonutility, nonbanking firm sale and leaseback transactions. They attribute these results to the market's perception that the transaction will result in a reduction in the present value of expected taxes occasioned by the transaction. In contrast, Slovin, Sushka, and Polonchek (1990b) find that sale and leaseback transactions by commercial banks are associated with significant negative announcement period returns—a result attributed to bank capital regulation.

FINANCIAL LEASING BY UTILITY FIRMS

Crane (1987), Dunn and Topper (1987), and Klein (1989) suggest multiple rationales for the use of lease financing by electric utilities. First, as is the case for nonutility firms, sale and leaseback transactions permit a utility that is not currently taxable, that is not projected to be taxable in the near future, or that has insufficient current and projected taxable income to take full advantage of additional tax shields and credits to transfer the tax

benefits of ownership to a taxable third party. Although this motivation for leasing continues today, it was especially important in the early and mid-1980s because of the availability of the investment tax credit on utility plants and the accelerated write-offs of utility plants under ACRS depreciation. Furthermore, depending on the price at which the asset is sold in a sale and leaseback transaction, the amount of the investment tax credit and the accelerated depreciation tax shield may be greater for a third party than it is for the utility.[1] In addition, the ability to lease an undivided interest in a power plant allows a user-lessee to sell and lease back only the portion of the asset for which the use of the tax benefits of ownership is in doubt.

The Tax Reform Act of 1986 dramatically changed the tax benefits associated with the ownership of utility assets. The abolition of the investment tax credit and the drastic reduction in the depreciation tax shields available both for coal and nuclear power plants suggests that these transactions may tend to cluster toward the end of 1986 if they were heavily tax-motivated.[2]

A second rationale that has been cited for utility use of sale and leaseback financing is that it alleviates the rate shock associated with bringing a new plant into the rate base (Zanoni and Robison, 1985). Under traditional rate making, when a utility brings a new plant into its rate base, rates increase dramatically and then decline over time as the plant is depreciated and its rate base value declines. In contrast, under sale and leaseback financing the utility usually makes level payments over the life of the lease. These lease payments normally are treated as a cost of service and reflected in a utility's rates. In NMPSC Docket No. 1995, the case in which the Public Service Company of New Mexico received approval to sell and leaseback its 10.2 percent ownership interest in Palo Verde Nuclear Generating Station Unit 1,[3] the company's CFO testified as follows:

Q. WHAT ARE THE BENEFITS OF THE PROPOSED TRANSACTION?

A. The sale and leaseback financing of the facilities will provide benefits to PNM's customers through two channels. First, the net present value of capital costs (and the total nominal costs) will be reduced by the transfer of tax benefits and by the recapitalization of the plant financing with greater debt leverage. Second, the revenue requirements will be levelized over the life of the plant ... Because the new owners will recapitalize the plant with greater debt leverage, the lease payment represents a lower cost of capital than would ownership under PNM's composite cost of capital. Also, PNM's tax situation is such that it cannot take full advantage of tax benefits at this time. The sale will transfer the benefits of tax depreciation to the lessors.

---

[1] The Tax Code also permitted the lessor and the lessee to share the investment tax credit. Hence, if all or part of the investment tax credit were retained by the lessee and the sale price were greater than the book value of the asset to the original owner (lessee), the amount of investment tax credit could be increased for the lessee.

[2] Although these benefits generally were terminated at the end of 1986, certain utility assets were grandfathered, making it possible for utility firms to receive the pre-1987 tax benefits for long-lived assets placed in service through much of 1987.

[3] This particular lease is the first time an undivided interest in a nuclear plant was financed in a sale and leaseback transaction.

The levelization-of-rates-to-reduce-rate-shock argument implies that all utility firms should be motivated to engage in sale and leaseback transactions at the time they bring an expensive new utility plant into the rate base, regardless of their tax circumstances. Hence, if this argument is valid, one would expect to find sale and leaseback transactions spread more or less evenly over time and not clustered among any particular group of firms, such as those with high risk or those with low tax effective tax rates.

The CFO of PNM also argues that a third rationale for utility sale and leaseback financing exists. He contends that the capital costs associated with lease financing may be lower than those associated with ownership because the lessor will leverage the asset more highly than the utility could. This argument is of dubious merit unless there is a large informational asymmetry or some other capital market inefficiency. Because of the extensive amount of publicly available information about utility firms, it is unlikely that such an informational asymmetry exists.

One possible source of a financing cost benefit, however, may arise from lower expected bankruptcy costs that would be borne by a lessor in a lease transaction compared to the bankruptcy costs borne by secured lenders. Krishnan and Moyer (1994) find empirical support for a bankruptcy cost differential justification for leasing, although their analysis does not include utility firms. The bankruptcy cost differential argument is consistent with evidence of an association between firms with high amounts of debt financing and high amounts of lease financing. Accordingly, we anticipate that utilities engaged in lease transactions will tend to be the financially weaker firms in the industry.

Dunn and Topper (1987) argue that sale and leaseback financing transactions by utilities should improve the lessee's bond rating and hence reduce its capital costs. This logic is questionable because the transfer of debt from one form (bonds) to another form (a financial lease) should have a minimal impact on overall capital costs. Because of the greater risk to the lender in bankruptcy compared to a lessor, the opposite may be true. We examine the behavior of bond ratings for lessee firms around the time of the sale and leaseback transaction. Contrary to the arguments of Dunn and Topper and consistent with the implications of the bankruptcy cost argument for financially distressed firms, we expect lessee firms to experience declines in their bond ratings in the time period surrounding the sale and leaseback transaction.

Another argument that has been advanced in favor of leasing is that frequently there are less onerous protective covenants with leasing than with borrowing. This rationale is more likely to be important for financially weaker firms that are more subject to burdensome covenants in secured borrowing arrangements.

Other arguments have been made in support of lease financing by utilities (Crane, 1987; Dunn and Topper, 1987; Klein, 1989; and Zanoni and Robison, 1985); for example:

- Leasing frees cash to decrease high cost debt or to use in diversification efforts;
- Leasing often gives the lessee the ability to report accounting gains on the sale and leaseback of assets; and
- Leasing provides potential off-balance sheet financing.

None of these arguments provides a compelling economic rationale for sale and leaseback transactions by utilities and, hence, are dropped from further consideration.

HYPOTHESES

The discussion above suggests a number of testable hypotheses regarding the use of sale and leaseback financing by utility firms.

TAX HYPOTHESIS

If the tax transfer arguments in support of utility sale and leaseback transactions are valid, lessee utilities should be firms with uncertainty about their ability to fully utilize the tax benefits of ownership. One important measure of this tax use exposure is the ratio of the allowance for funds used during construction (AFUDC) to net profit, as reported by Value Line. AFUDC is a noncash earnings accounting entry reflecting the deferred return (both equity and debt) on a utility plant that is under construction. The ratio will be large for firms with large construction programs (and, consequently, a substantial amount of plant entering the rate base in the future on which tax benefits can be realized). The ratio also will be large for firms with poor current earnings from assets already in service. A finding that lessee utilities have high ratios of AFUDC to net profit, compared with other utilities, would be consistent both with the tax transfer arguments and with the financial distress arguments discussed above.

If utility sale and leaseback transactions are tax motivated, these transactions may be clustered around the effective date of the Tax Reform Act of 1986, when the tax benefits of ownership were reduced significantly due to the abolition of the ITC and the lengthening of the depreciable life of utility assets. (See footnote 2.)

Additional evidence of the tax motivation for sale and leaseback transactions can be gained by comparing the tax rates for the lessee utilities versus the tax rates for other firms in the industry. If tax motivations are important in explaining utility leasing decisions, lessee utilities should have lower tax rates than the average firm in the industry. A finding of lower tax rates for lessee utilities is consistent both with the tax motivation and the financial distress arguments because utility firms with low profitability will tend to have lower income tax rates as reported by Value Line.[4]

FINANCIAL DISTRESS HYPOTHESIS

As noted above, utility firms facing possible financial distress will tend to have high ratios of AFUDC to net profit and lower reported tax rates as computed using the Value Line methodology.

The financial distress hypothesis and prior research in leasing and capital structure suggest that firms engaged in sale and leaseback transactions will be more highly leveraged than other firms in the industry, on average. Accordingly, we expect lessee utilities to have lower common equity ratios than the average firm in the industry.

[4] We use the tax rate reported by Value Line, which is defined as "federal, foreign, and state income taxes (including deferred taxes) reported to stockholders, divided by pretax income reported to stockholders." Value Line points out that this is not the true tax rate shown in IRS tax filings, but a book tax rate that proxies as a measure of earnings quality. Value Line observes that "the lower the figure ..., the poorer the reported earnings quality."

The financial distress and burdensome covenant arguments also suggest that lessee utilities will tend to be riskier overall than the average firm in the industry. As measures of overall risk, we consider the Value Line safety rank[5] and the Value Line financial strength[6] ratings of the lessee firms. We hypothesize that lessee utilities will have weaker safety rankings and financial strength ratings than the electric utility industry overall.

Additional evidence of the financial condition of lessee utilities can be obtained by considering the bond rating history of these firms. Consistent with the burdensome covenants and financial distress hypotheses, bond ratings are expected to decline in the period around the sale and leaseback transaction as a result of the expected deterioration in the financial condition of the lessee firm and because of the loss of a portion of the diversified asset base securing the firm's bonds. We document changes in the S&P bond ratings for the lessee utilities over the period from two years before the transaction to two years after the transaction relative to changes in industry-wide bond ratings during this period.[7]

LEVELIZATION OF RATES HYPOTHESIS

Levelization of rates is the major competing alternative hypothesis to the tax and financial distress arguments discussed above. If levelization of rates to reduce the rate shock of a new utility plant entering a firm's rate base is a primary motivation for these transactions, we would expect to find sale and leaseback transactions spread more or less evenly over time. In addition, if rate levelization is a primary motivation, sale and leaseback transactions should be attractive to all utility firms, not just those with poor earnings and a higher potential for financial distress.

ANNOUNCEMENT EFFECTS

Finally, we examine the announcement period effects of utility sale and leaseback transactions. The expected impact of these transactions on the wealth of common equity investors is difficult to establish, *a priori*. On the one hand, sale and leaseback transactions may signal weak future earnings, an unfriendly regulatory environment, and a deteriorating financial condition. These arguments suggest sale and leaseback announcements will be interpreted as a negative signal. The extensive financial and operating information available about regulated electric utilities through the regulatory process, however, may neutralize the surprise associated with these announcements. On the other hand, to the extent that a sale and leaseback transaction reduces the rate shock associated with bringing

[5] Value Line describes *safety* as a measure of potential risk associated with individual common stocks rather than large diversified portfolios (for which beta is a good measurement). Safety is based on the stability of price—which includes sensitivity to market, i.e., beta, as well as the stock's inherent volatility, adjusted for trend and other factors such as company size, the penetration of market, product market volatility, degree of financial leverage, earnings quality, and the overall condition of the balance sheet. Safety ranks range from 1 (highest) to 5 (lowest).

[6] The Value Line financial strength ratings have values ranging from A++, A+, A, to C, in a total of nine rating categories. The financial strength ratings are based on the following variables: equity coverage of debt, equity coverage of intangibles, the quick ratio, accounting methods, variability of return, fixed charge coverage, stock price stability, and company size.

[7] The four year window is used because of the lags in the bond rating process. Bond rating changes provide an indication of the trend in the financial condition of the lessee firms.

expensive new assets into the rate base and therefore increases the probability of a utility being able to recover all of its investment through the regulatory process, a positive announcement effect may be expected. We provide an event study analysis of the effect of public announcements of these transactions on shareholder wealth to gain insight regarding the nature of the signals that these transactions may convey to the investors.[8]

ANALYSIS OF RESULTS

The *Wall Street Journal Index* between 1978 and the end of 1990 is used to identify sale and leaseback announcements. We search for announcements from each of the 100 electric utilities followed by Salomon Brothers.[9] These announcements are verified from the original article and from an examination of the company's proxy statements, annual reports, and 10K filings from the Compustat Corporate Text and the Disclosure databases, when available. For purposes of the announcement period effects portion of the study, the sample is screened using the following criteria:

- Availability of data on CRSP;
- Absence of other significant news about the firm during the three days before and after the announcement.

Table 1 chronologically lists the 16 utility announcements that meet these criteria. In addition to those identified in Table 1, two other significant sale and leaseback transactions by electric utilities are identified during this period: Deseret Generation Cooperative ($664 million, announced on January 3, 1986) and Oglethorpe Power ($395 million, a nonpublic firm, announced during late 1985). Transaction and company-specific data are not available for either of these announcements, and they are dropped from further analysis.

As can be seen in Table 1, there is a clustering of transaction announcements (including Deseret and Oglethorpe) in 1985, 1986, and early 1987. This clustering is consistent with sale and leaseback transactions being stimulated by the changing tax benefits of utility plant ownership brought by the 1986 Tax Reform Act.

Some evidence in support of the financial distress hypothesis can be seen in the three transactions occurring after the effective date of the Act (Centerior, 1987; El Paso, 1988; and CMS, 1990). These sale and leaseback transactions were undertaken by firms in particularly weak financial conditions and with little ability to use tax benefits of ownership, as is evident in Tables 2 and 3. El Paso ultimately was forced to declare bankruptcy.

---

[8] Complicating an event study analysis of the impact of sale and leaseback transactions by utilities is the potential for early leakage of the information to the market because of filings and hearings before regulatory bodies. There is evidence that for much of our sample the date of announcement in the *Wall Street Journal* may be beyond the time when information about the transaction may have been revealed through some aspect of the regulatory process.

[9] The Salomon Brothers database provides comprehensive data on the 100 largest, independent, investor-owned electric utilities. There are a few other independent, investor-owned electric utilities, but these firms tend to be small. Data for these firms are not available from Value Line, a sole source of some of the variables used in the analysis. Hence, they are excluded from consideration. There are no sale and leaseback announcements among the seven additional firms included in the Salomon Brothers group compared to the Value Line companies.

Table 1—Electric Utility Sale and Leaseback Transactions

Company	Announcement Date	Transaction Description	Amount ($ millions)
Portland General Electric	June 1978	Headquarters building	$57
Philadelphia Electric	December 1981	Tax benefit transfer—nuclear plant	$53.7
Public Service NM	January 1985	Transmission line	$68
Public Service NM	November 1985	Percentage interest in nuclear power plant	$400
Tucson Electric	Late 1985	Coal plant	$850
Montana Power	December 1985	Percentage interest in coal plant	$292
Portland General Electric	January 1986	Percentage interest in coal plant	$233
El Paso Electric	August 1986	Percentage interest in nuclear power plant	$502
Public Service NM	August 1986	Percentage interest in nuclear power plant	$415
Niagara Mohawk	November 1986	Transmission line	$100
AZP Group	December 1986	Percentage interest in nuclear power plant	$491
Catalyst Energy Development	January 1987	Coal plant	$705
Ohio Edison	April 1987	Percentage interest in nuclear power plant	$509
Centerior Energy	June 1987	Percentage interest in coal plants	$1,000
El Paso Electric	January 1988	Percentage interest in nuclear power plant	$250
CMS Energy	June 1990	Cogeneration plant	$1,541

For comparisons between the lessee firms and industry average standards for AFUDC/net profit, the average tax rate, the Value Line safety rank, the Value Line financial strength rating, and the common equity ratio, each observation from the sale and leaseback firms is compared with the industry average for the corresponding year. The industry averages are calculated using data for the 93 electric utility firms followed by Value Line. For all variables except the Value Line safety rank and the Value Line financial strength rating, the industry mean is used as the industry average measure. For the safety rank and financial strength rating, the industry median is used because of the categorical nature of these measures. We use the Wilcoxon signed rank test for paired differences (Gibbons, 1976). This procedure requires no assumptions about the underlying sample distribution and about independence across the sample and comparison group. In addition, the test is more powerful than parametric tests for small samples.[10]

The first column of Table 2 presents the AFUDC/net profit ratio for each of the lessee firms.[11] The overall mean for the firms in Table 2 is 57.6 percent.[12] In contrast, the industry mean corresponding to each of the years represented by the sale and leaseback transactions in Table 2 is 25.9 percent. Using the Wilcoxon signed ranks test for paired differences between each observation and the industry mean for the corresponding year, the null hypothesis that the AFUDC/net profit for the sale and leaseback firms is less than or equal to the industry mean ratio is rejected at the 0.01 level. This result is consistent both

[10] Each observation is compared with the industry average for that year. The absolute values of the difference between the industry average and the sample observation are ranked. The ranks are assigned the signs of the difference. The positive and negative ranks are added separately. The values for these sums are compared with the distribution for statistical significance, depending on the null and alternative hypotheses.

[11] The AFUDC-to-net profit measure is as reported by Value Line for the last full year before the transaction announcement.

[12] This leasing firm average is biased downward by the 3.7 percent figure for Portland General Electric's 1986 transaction. Portland's ratio for the previous year was 50.5 percent.

Table 2—Earnings Quality and Risk Profile

Company*		AFUDC / Net Profit**	Tax Rate	Safety Rank***	Financial Strength ***	Common Equity Ratio†
Portland General Electric		50.5%	8.1%	2	NA	33.6%
Philadelphia Electric		68.0	19.3	2	B++	36.5
Public Service Co. of NM (two transactions)		57.5	40.3	3	B	42.1
Tucson Electric		55.3	10.3	2	A	48.6
Montana Power		40.2	28.4	3	B	42.9
Portland General Electric		3.7	46.3	3	B+	41.3
El Paso Electric		87.6	41.7	4	B	36.2
Public Service Co. of NM		55.2	41.5	3	B	41.7
Niagara Mohawk		45.5	34.7	4	B+	42.0
AZP Group		59.2	36.4	3	B	36.2
Catalyst Energy Development		NA	NA	NA	NA	23.6
Ohio Edison		78.1	21.1	4	C++	35.4
Centerior Energy		86.6	0.0	4	B	39.0
El Paso Electric		65.7	11.8	4	B	38.9
CMS Energy		53.5	14.3	4	C++	36.1
Sample:	Mean	57.6%	25.3%			38.3
	Median			3	B	
Industry:	Mean	25.9%	34.8%			42.9
	Median			2.0	B++ (A in 1978)	
Sum of Ranks (+)		101.0	16.0	105.0	85	11
Sum of Ranks (-)		4.0	89.0	0.0	2.5	109
p value††		0.01	0.01	0.01	0.01	0.01

* Companies and sale and leaseback projects are in the order presented in Table 1, excluding duplications in any year

** Allowance for funds used during construction (a noncash component of earnings related to construction work in progress) divided by net profit. Source: Value Line, various reports for the last full year before the transaction

*** Source: Value Line, various reports. The safety rank and financial strength ratings are taken from the last Value Line report before the transaction announcement. The highest safety rank is 1 and the lowest is 5. financial strength ratings range from A++, A+, A, to C in nine increments

† Source: Value Line. Measure for the last full year prior to the announcement

†† Wilcoxon signed rank test for paired differences between each observation and the industry average for the corresponding year.

with the tax motivation hypothesis (large construction programs reduce the probability that the firm will be able to take full advantage of the tax benefits of ownership) and the financial distress hypothesis (if the high ratio is due to low earnings on assets in service). A high proportionate amount of AFUDC in earnings, to the extent that it indicates a significant construction program and hence the prospect of a substantial rate shock when the assets under construction enter the rate base, also is consistent with the levelization-of-rates hypothesis.

The second column of Table 2 presents the Value Line reported tax rates for each of the lessee firms. The mean tax rate for the lessee firms is 25.3 percent, compared with the industry mean of 34.8 percent for the comparable years. Using the Wilcoxon signed ranks test for paired differences, the null hypothesis that the tax rate for the sale and leaseback

firms is greater than or equal to the industry mean tax rate is rejected at the 0.01 level. This finding is consistent both with the tax hypothesis and the financial distress hypothesis. (See footnote 4.)

The third column of Table 2 presents the Value Line safety rank for the lessee firms from the last Value Line report before the announcement. The safety rank for each firm is compared with the industry median safety rank for the years of the sale and leaseback transactions. This median value is 2 for all years. (Smaller numbers indicate greater safety.) The median safety rank for the lessee firms is 3.0. Using the Wilcoxon signed ranks test for paired differences, the null hypothesis that the safety rank for the sale and leaseback firms is less than or equal to the industry median ranking is rejected at the 0.01 level. Thus, using this criterion, the lessee firms are significantly more risky than firms in the industry in general, a result supporting the financial distress hypothesis.

The fourth column of Table 2 presents the Value Line financial strength rank for the lessee firms from the last Value Line report before the announcement. The financial strength rank for each firm is compared with the industry median financial strength rank for the years of the sale and leaseback transactions. This median value was B++ for all years except 1978, when it was A. The median financial strength rank for the lessee firms is B. Using the Wilcoxon signed ranks test for paired differences, the null hypothesis that the financial strength for the sale and leaseback firms is greater than or equal to the industry median ranking is rejected at the 0.01 level, providing additional evidence in support of the financial distress hypothesis.

The fifth column of Table 2 presents the common equity ratios for the last full year before the lease announcement. These ratios also point to firms in a weakened financial condition. The mean common equity ratio for the lessee firms is 38.3 percent, compared to an industry mean of 42.9 percent for the years of the sale and leaseback transactions. Using the Wilcoxon signed ranks test for paired differences, the null hypothesis that the equity ratio for the sale and leaseback firms is greater than or equal to the industry mean common equity ratio is rejected at the 0.01 level. The high financial leverage position of the lessee firms is consistent with earlier research indicating a complementary relationship between leasing and borrowing. Low common equity ratios also are consistent with a profile of lessee firms that are in a weakened financial condition and may face high burdensome covenant and financial distress costs associated with additional borrowing.

Table 3 provides the S&P bond ratings for each of the lessee firms two years before the transaction and two years after the transaction. In no case did the lessee firms have an initial bond rating above A+, and most of the ratings were A- or lower. Two years after the transactions the highest bond rating for the lessee firms was BBB+, with the exception of Portland General Electric's second transaction and Tucson Electric. The Portland case is unique because the higher bond rating reflects a resolution of the uncertainty associated with its involvement in the WPSS projects. The Tucson bond ratings ultimately declined dramatically to a level of B in 1990. Eleven of the ratings decreased over the period from two years before to two years after the announcement, one remained unchanged, and three increased. We examine the behavior of utility industry bond ratings over the period from 1983 to 1989 for rated bonds from 113 electric utilities, excluding

Table 3—Bond Rating Changes Around Sale and Leaseback Transactions

Company*	Bond Rating (S&P)** (Two years before event)	Bond Rating (S&P) (Two years after event)
Portland General Electric	BBB	BBB-
Philadelphia Electric	A-	BBB-
Public Service Co. of NM	A	BBB+
Public Service Co. of NM	A	BBB
Tucson Electric	A+	A-
Montana Power	A	BBB+
Portland General Electric	BBB-	A
El Paso Electric	A	BBB-
Public Service Co. of NM	A-	BBB
Niagara Mohawk	A-	BBB+
AZP Group	BBB+	BBB+
Catalyst Energy Development	NA	NA
Ohio Edison	BBB-	BBB
Centerior Energy	BBB+	BBB-
El Paso Electric	BBB+	BB+
CMS Energy	BB+	BBB
Number increased		3
Number unchanged		1
Number decreased		11
Industry average changes between 1983 and 1989:		
Number increased		44
Number unchanged		37
Number decreased		32

* Companies and sale and leaseback projects are in the order presented in Table 1
** Source: *Standard & Poor's Bond Guide*. Year-end rating for the last two full years before and after the event

the firms in our sale and leaseback sample.[13] Of that total, 44 electric utilities reported increased bond ratings, 37 had no change in their bond ratings, and only 32 had reduced bond ratings. The pattern of declining bond ratings for the lessee firms after the sale and leaseback transaction is consistent with a profile of lessee utilities that are financially weak and face additional future financial deterioration. These declines cannot be explained by industry-wide factors.

In addition to the analysis of Tables 1 through 3, we also conduct an event study examining the effect of sale and leaseback announcements on the common equity of the sale and leaseback utility firms. The announcement day, day 0, is the day a reference to the sale and leaseback announcement first appears in the *Wall Street Journal*. The daily returns are measured for an event window of 41 days (day - 20 to day +20). The returns are

[13] The period between 1983 and 1989 is chosen because it includes all but three of the transactions without becoming so broad as to incorporate the impact of other confounding events. Subperiods shorter than 1983-1989, including 1984-1988, resulted in similar evidence that the industry was, in general, experiencing increasing bond ratings at the time of these sale and leaseback transactions. The sample for bond rating changes includes all independent electric utilities. This somewhat greater sample is possible because it is not necessary to constrain this test to include only firms followed by Value Line in order to obtain the needed data. The results obtained when the control sample is limited to the Value Line firms are qualitatively identical.

measured using the daily returns for the stock and the value-weighted market index from CRSP. The excess returns across the entire sample are statistically insignificant for all days during the 41 days surrounding the announcement. Excess returns for the two day (day -1 and day 0) and the three day (day -1, day 0, and day +1) event windows also are insignificant. The extensive information that is available about utility firms through the regulatory process and filings appears to neutralize the surprise effect of these announcements.

CONCLUSIONS

Sixteen large sale and leaseback transactions by electric utilities during the period 1978 to 1990 have been examined to determine their motivation and to provide additional insight regarding the general question of why firms engage in sale and leaseback financing. We find that most of the transactions are clustered from 1985 to 1987, the period just prior to the effective date of the Tax Reform Act of 1986, a law that reduced the attractiveness of sale and leaseback transactions to utilities. Tax considerations appear to play an important part in explaining these transactions.

We also find that most of the firms in the sample have low common equity ratios, low Value Line safety rankings, low Value Line financial strength ratings, and high proportions of noncash earnings (AFUDC) relative to industry average levels. These findings are consistent with financial distress explanations of utility sale and leaseback financing. The bond ratings for the lessee utilities tended to decline in the two year period after the sale and leaseback transaction, while overall industry bond ratings were increasing—a result that also supports the financial distress hypothesis. Finally, lessee utilities had significantly lower Value Line-reported tax rates, a result supporting both the financial distress argument and the tax argument.

An event study of the announcement effects of sale and leaseback transactions on common shareholder returns shows no significant announcement period effects for the sample as a whole. The extensive amount of information available through the regulatory process regarding public utility firm's financing plans increases the potential for early leakage of the information regarding the proposed transaction, thus contaminating any event study analysis.

Overall, the evidence suggests that in addition to tax considerations, sale and leaseback transactions are appealing to the financially weaker firms in the industry, perhaps because of the less burdensome covenants associated with lease financing compared with secured borrowing and the preferred position of the lessors in bankruptcy. The fact that these sale and leaseback transactions tend to be clustered in the 1985-1987 period and are undertaken almost exclusively by the financially weaker firms in the industry suggests that sale and leaseback transactions are not motivated primarily by a utility desire to level utility rates and thereby reduce the rate shock associated with bringing new plants into service.

REFERENCES

1. Ang, J., and P. Peterson, "The Leasing Puzzle," *Journal of Finance,* 39 (September 1984), pp. 1055-1065.

2. Bowman, R., "The Debt Equivalence of Leases: An Empirical Investigation," *Accounting Review*, 55 (April 1980), pp. 237-253.

3. Brealey, R., and C. Young, "Debt, Taxes and Leasing—A Note," *Journal of Finance*, 35 (December 1980), pp. 1245-1250.

4. Brick, I., W. Fung, and M. Subrahmanyam, "Leasing Preferences," NJCRFS Working Paper #9002 (July 1990).

5. Crane, D.G., "Behind the Increasing Use of Lease Financing by Utilities," *Public Utilities Fortnightly*, 119 (February 19, 1987), pp. 24-28.

6. Crawford, P., C. Harper, and J. McConnell, "Further Evidence on Terms of Financial Leases," *Financial Management*, 10 (Autumn 1981), pp. 7-14.

7. Dunn, M.D., and B.C. Topper, Jr., "Terms and Conditions for Electric Utility Success with Leveraged Lease Financing," *Public Utilities Fortnightly*, 119 (April 16, 1987), pp. 14-23.

8. Erickson, S., "The Cross Sectional Determinants of Lease Use," Seattle University Working Paper (November 1990).

9. Finucane, T., "Some Empirical Evidence on the Use of Financial Leases," *Journal of Financial Research*, 11 (Fall 1988), pp. 321-333.

10. Gibbons, J.D., *Non-parametric Methods for Quantitative Analysis* (New York: Holt, Rinehart, and Winston, 1976).

11. Gudikunst, A.C., and G.S. Roberts, "Equipment Leasing Practices and Costs: Comment," *Financial Management*, 7 (Summer 1978), pp. 79-83.

12. R. Klein, "Utility Leveraged Leasing—Strengths and Weaknesses," *Public Utilities Fortnightly*, 124 (August 31, 1989), pp. 22-40.

13. Krishnan, V.S., and R.C. Moyer, "Bankruptcy Costs and the Financial Leasing Decision," *Financial Management*, 23 (Summer 1994), pp. 31-42.

14. Lease, R.C., J.J. McConnell, and J.S. Schallheim, "Realized Returns and the Default and Prepayment Experience of Financial Leasing Contracts," *Financial Management*, 19 (Summer 1990), pp. 11-20.

15. Lewellen, W., M. Long, and J. McConnell, "Asset Leasing in Competitive Capital Markets," *Journal of Finance*, 31 (June 1976), pp. 787-798.

16. Marston, F., and R. Harris, "Substitutability of Leases and Debt in Corporate Capital Structures," *Journal of Accounting, Auditing & Finance*, 11 (Spring 1988), pp. 147-169.

17. Miller, M., and C. Upton, "Leasing, Buying, and the Cost of Capital Services," *Journal of Finance*, 31 (June 1976), pp. 761-786.

18. Roenfeldt, R.L., and J. Henry, "Lease-Cost Measurement of Hospital Equipment Under Cost-Based Reimbursement," *Financial Management*, 8 (Summer 1979), pp. 24-35.

19. Schallheim, J., R. Johnson, R. Lease, and J. McConnell, "The Determinants of Yields on Financial Leasing Contracts," *Journal of Financial Economics*, 19 (September 1987), pp. 45-67.

20. Slovin, M., M. Sushka, and J. Polonchek, "Corporate Sale and Leasebacks and Shareholder Wealth," *Journal of Finance*, 45 (March 1990a), pp. 289-299.

21. Slovin, M., M. Sushka, and J.A. Polonchek, "Restructuring Transactions by Bank Holding Companies: The Valuation Effects of Sale-and-Leasebacks and Divestitures," Arizona State University working paper (1990b).

22. Smith, C., and L. Wakeman, "Determinants of Corporate Leasing Policy," *Journal of Finance*, 40 (July 1985), pp. 895-908.

23. Sorensen, I., and R. Johnson, "Equipment Financial Leasing Practices and Costs: An Empirical Study," *Financial Management*, 6 (Spring 1977), pp. 33-40.

24. Zanoni, R.A., and A.J. Robison, "Leasing—A Preferred Alternative for Utilities?" *Public Utilities Fortnightly*, 116 (July 11, 1985), pp. 35-39.