RISK INFORMATION AND FINANCIAL LEASE DISCLOSURES: SOME EMPIRICAL EVIDENCE

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Abstract

This paper reports the results of an empirical investigation into whether the disclosure of the present value of noncapitalized financial leases under ASR 147 conveyed information regarding the relative risks of lessee common stocks. In particular, the results indicate that in the time period surrounding the initial ASR 147 disclosures, the systematic risk levels of the common stocks of lessees appear to have been adjusted upwards vis-a-vis those for control samples of nonleasing firms. This market reaction appears to be especially observable for lessees with a higher than average amount of noncapitalized financial leases in their capital structures. Furthermore, the configuration of risk adjustments from a temporal viewpoint indicates that the ASR 147 disclosures contained sufficiently "new" information so as to cause significant revisions in the relative risk assessments of market participants. This appears to be the case despite possible market attempts to impound the risk-information effects in advance of the disclosures.

I. INTRODUCTION

Of all the information concerning long-term financial leases,[1] the disclosure of the capitalized amount — present value of rentals and related commitments -- by lessees, undoubtedly, has been the most controversial. Disagreements in this regard have centered largely around the potential utility of the present value data to investors and other users of the lessee's financial statements.[2] However, by requiring lessees to capitalize certain long-term financial leases (those classified as "capital" leases) and hence disclose the related present value numbers, the Financial Accounting Standards Board [1976] has, at least implicitly, accepted the view that the information has decision-relevance to investors and other statement users. The Securities & Exchange Commission [1973], in contrast, was more explicit. It justified the requirements of Accounting Series Release (ASR) 147, which called for the footnote disclosure of, inter alia, the present value of certain noncapitalized financial leases, on grounds that the information is "essential to investors" if they are to "compare meaningfully the capital and asset structures and the operating results of companies making use of different methods of acquiring and financing assets.[3] But, does this information content hypothesis have descriptive validity? In other words, did the present value disclosures, in fact, contain decision-relevant information for statement users?

The purpose of this paper is to provide some empirical evidence on this issue. Specifically, this paper reports the results of an empirical investigation into whether the ASR 147 disclosures of the present value of noncapitalized financial leases conveyed information regarding the relative risks and, hence, valuation of lessee common stocks.[4] Although the testing perspective is from the viewpoint of capital market participants only, they probably represent the single most important group of financial statement users.

The evidence presented here is consistent with the statement that the present value of lease commitments disclosed under ASR 147 did, indeed, convey information relevant to risk-return assessments of lessee common stocks.[5] In particular, the results indicate that in the time period surrounding the initial ASR 147 disclosures, market participants appear to have adjusted upwards the systematic risk levels of the common stocks of lessees vis-a-vis those for

control samples of nonleasing firms. This market reaction appears to be especially observable for lessees with a higher than average amount of noncapitalized financial leases in their capital structures. Furthermore, the findings suggest that market attempts to anticipate the risk-information effects notwithstanding, the ASR 147 disclosures contained sufficiently "new" information regarding the relative risks of lessee common stocks so as to cause substantive revisions in the risk assessments of market participants. It would appear, accordingly, that the SEC's views concerning the potential utility of the noncapitalized lease disclosures were shared by investors and other capital market agents.

The remainder of this paper is organized as follows. After a discussion of some theoretical relationships concerning financial leases and the valuation of common stocks, Section II develops the hypotheses to be tested in this paper and introduces related experimental design considerations. Issues pertaining to the database, sample and method of analysis are then described in Section III. Next, Section IV presents and discusses the empirical results relating to the risk adjustment experience of lessee common stocks to the ASR 147 disclosures. Finally, some concluding remarks are included in Section V of this paper.

II. NORMATIVE VALUATION RELATIONSHIPS, DEVELOPMENT OF TEST HYPOTHESES AND RELATED EXPERIMENTAL DESIGN CONSIDERATIONS

Normative Valuation Implications of Financial Leases

In order to visualize the valuation implications of noncancellable lease financing, consider as a point of departure the two-parameter model of market equilibrium proposed by Sharpe [1964], Lintner [1965], Mossin [1966] and Fama [1968] among others:[6]

$$(1) \qquad E(\tilde{r}_j) = r_f + \lambda \theta_j$$

where $\tilde{r}_j$ = return on equity for firm j with mean $E(\tilde{r}_j)$ and standard deviation $\sigma(\tilde{r}_j)$;

r_f = return on a risk-free asset, which is assumed to be a known constant;

$\tilde{r}_m$ = return on the market portfolio with mean $E(\tilde{r}_m)$ and standard deviation $\sigma(\tilde{r}_m)$;

λ = $[E(\tilde{r}_m) - r_f]$ = equilibrium marginal rate of substitution of return for risk, or "market price (per unit) of risk"; and

θ_j = $\rho(\tilde{r}_j,\tilde{r}_m)\sigma(\tilde{r}_j)$ = "marginal asset risk"[7] of equity security j, which is equal to the product of the coefficient of correlation between $\tilde{r}_j$ and $\tilde{r}_m$, $\sigma(\tilde{r}_j,\tilde{r}_m)$, and the standard deviation of $\tilde{r}_j$, $\sigma(\tilde{r}_j)$.

The equilibrium expected return on a firm's common stock, $E(\tilde{r}_j)$, in other words is equal to the return on a risk-free asset, r_f, plus a premium for bearing a unit of nondiversifiable or marginal asset risk, $\lambda\theta_j$. Although a variety of firm-specific and general economic factors[8] determine the level of the marginal asset risk of a firm's common stock, θ_j, Rubenstein [1973]--following the initial efforts of Hamada [1969, 1972]--has demonstrated that it incorporates not only the effect of the underlying nondiversifiable operating risk of the firm, but also the effect of nondiversifiable financial risk attributable to the degree of financial leverage in the firm's capital structure. In particular, his analytical results[9] indicate that the effect of financial leverage on the components of θ_j is as follows:

(2) $\rho(\tilde{r}_j,\tilde{r}_m) = \rho(\tilde{r}^*_j,\tilde{r}_m)$ $\sigma(\tilde{r}_j) = \sigma(\tilde{r}^*_j)[1+(D/S)_j]$

where $\tilde{r}^*_j$ = return on equity for firm j -- assuming no financial leverage (debt) in its capital structure -- with mean $E(\tilde{r}^*_j)$ and standard deviation $\sigma(\tilde{r}^*_j)$;

$\rho(\tilde{r}^*_j,\tilde{r}_m)$ = coefficient of correlation between $\tilde{r}^*_j$ and $\tilde{r}_m$; and

$(D/S)_j$ = ratio of the present dollar value of debt (D) and present dollar value of equity (S) in the capital structure of firm j.

While the correlation coefficient $\rho(\tilde{r}_j,\tilde{r}_m)$ is invariant to changes in the degree of financial leverage in a firm's capital structure, the entire effect of the resulting change in financial risk is captured in the standard deviation $\sigma(\tilde{r}_j)$. The marginal asset risk of the equity security of a leveraged firm (θ_j), therefore, is equal to the product of the marginal asset risk of its unleveraged counterpart, θ^*_j, and a leverage factor on one plus its debt-equity ratio:

(3) $\theta_j = \theta^*_j[1+(D/S)_j]$

where $\theta^*_j = \rho(\tilde{r}^*_j,\tilde{r}_m)\sigma(\tilde{r}^*_j)$ = marginal asset risk for the unleveraged (all-equity financed) counterpart of firm j.

Finally, observe that since the "systematic risk" of equity security j, β_j, is equal to the marginal asset risk measure, θ_j, scaled by the standard

deviation of the return on the market portfolio, $\sigma(\tilde{r}_m)$, the effect of financial leverage on β_j is identical to that on θ_j:

$$(4) \qquad \beta_j = \beta^*_j[1+(D/S)_j]$$

where $\beta_j = \theta_j/\sigma(\tilde{r}_m) = \rho(\tilde{r}_j,\tilde{r}_m)\sigma(\tilde{r}_j)/\sigma(\tilde{r}_m)$ = systematic risk of equity security for leveraged firm j with D and S dollars of debt and equity in its capital structure;

$\beta^*_j = \theta^*_j/\sigma(\tilde{r}_m) = \rho(\tilde{r}^*_j,\tilde{r}_m)\sigma(\tilde{r}^*_j)/\sigma(\tilde{r}_m)$ = systematic risk for firm j's unleveraged (all-equity financed) counterpart.

Equation (4), in other words, states that if a firm employs debt in its capital structure, then the systematic risk level of its common stock would increase by a multiplicative factor of one plus the debt-equity ratio, over what it otherwise would have been had no debt been substituted for equity.

To the extent capital market participants view long-term financial leases as equivalent to debt, equation (2) - (4) provide a precise statement of the normative equity valuation implications of that financing device.[10] Moreover, those relationships provide a theoretical basis for developing testable hypotheses concerning the information content of financial lease data.

New Risk Information and ASR 147 Disclosures

Consider a direct test of the issue as to whether the initial disclosure of the present value of noncapitalized leases under ASR 147, PV_a, conveyed "new" information relevant to the valuation of lessee common stocks. If the initial disclosure of PV_a did, in fact, convey new information, then market participants can be expected to have re-assessed the systematic risk levels so that the distribution of "post-disclosure" βs is significantly different from that prevailing before the disclosures:

$$(5) \qquad E(\beta|PV_a) \neq E(\beta)$$

where $E(\beta|PV_a)$ = expected value of the distribution of systematic risks of lessees conditional on PV_a, i.e., mean of the "post-disclosure" distribution of βs; and

$E(\beta)$ = expected value of the unconditional distribution of the systematic risk of lessees, i.e., mean of the "pre-disclosure" distribution of βs.

But, is the direction of the market's potential risk adjustment process likely to be upwards $[E(\beta|PV_a) > E(\beta)]$ or downwards $[E(\beta|PV_a) < E(\beta)]$? The

answer to this important question depends, largely, upon the relationship between the pre-disclosure market estimate[11] of the present value of noncapitalized leases in a lessee's capital structure, PV_e, and the actual amount reported under ASR 147, PV_a. Essentially, given that the β level of a firm's common stock is directly related to the amount of debt, including financial leases, in its capital structure, the risk adjustment — direction as well as magnitude -- can be anticipated to be positively associated with the market forecast error, $(PV_a - PV_e)$. Unfortunately, since PV_e is an unobservable variable, this issue cannot be tested directly. An examination of the risk adjustment experience of lessees in the context of (5) above, on the other hand, may yield some insights regarding market expectations of the amount of noncapitalized leases and related forecast errors.

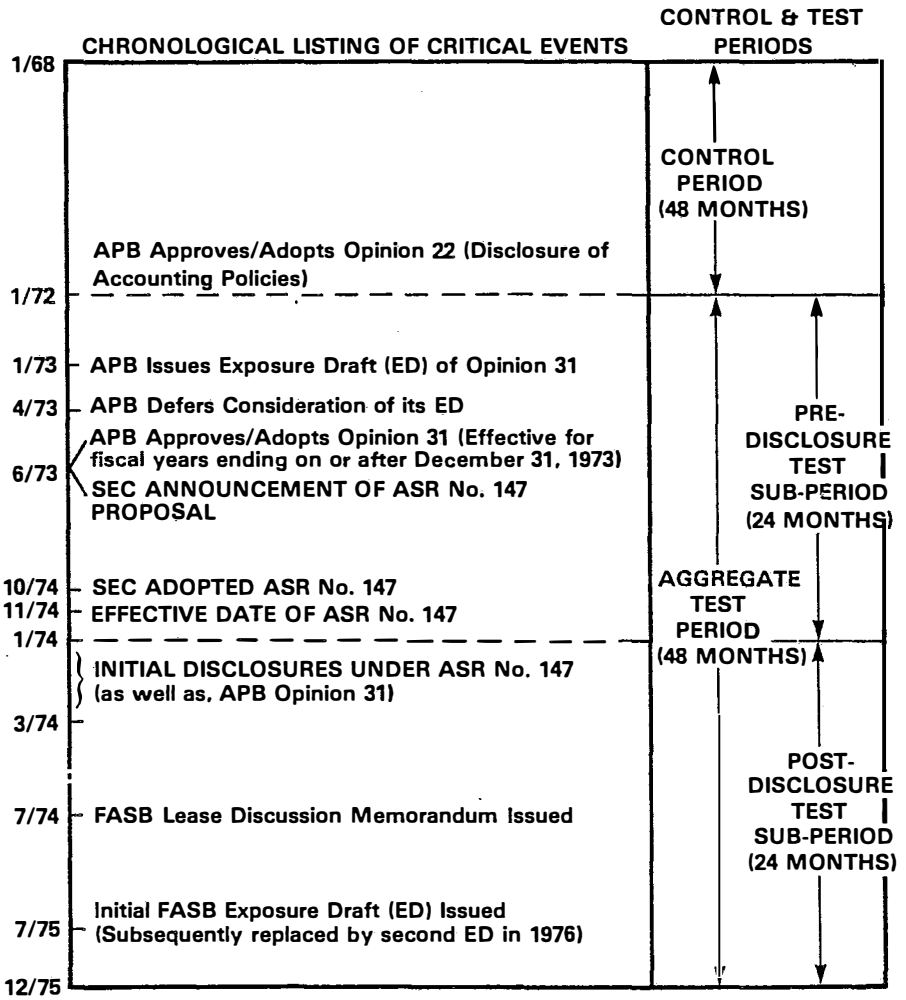
Some Design & General Methodological Considerations

An empirical test along these lines entails, in principle, a fairly straightforward research design. Initially, each firm in the sample composed of lessees is assigned to one of two or more groups (portfolios) on the basis of the relative amount of noncapitalized financial leases, i.e., increase in the debt-equity ratio that is attributable to PV_a. This permits one to determine whether or not the market reaction was homogeneous across firms with differing amounts of noncapitalized leases in their capital structures. Next, the pre- and post-disclosure systematic risks of each group are estimated. Finally, appropriate statistical tests are performed in order to determine whether the estimated post-disclosure β for each of the groups is significantly different from its pre-disclosure counterpart. Implementation of this research design, however, requires one to address two significant methodological issues: identification of the appropriate pre- and post-disclosure test periods and the problem of systematic risk changes due to extraneous factors.

Consider, initially, the issue relating to the identification of the relevant time period during which systematic risk adjustments would most likely have taken place if, in fact, ASR 147 provided market participants with "new" information regarding the relative risks of lessees. In order to facilitate this identification process, Figure 1 provides a chronological listing of the critical lease reporting developments that occurred during the period

FIGURE 1

CHRONOLOGICAL LISTING OF CRITICAL EVENTS SURROUNDING THE DEVELOPMENT OF ASR No. 147 REQUIREMENTS & IDENTIFICATION OF TEST PERIODS



surrounding the formulation of ASR 147 by the SEC. A survey of Figure 1 reveals that three distinct non-overlapping time periods can be identified in the eight years ending December 31, 1975:

(i) January 1968-December 1971: This 48-month period might be characterized as one in which no substantive lease reporting developments occurred; recall that APB Opinions 5 and 7, which specified the reporting standards for lessees and lessors respectively, were issued in 1964 and 1966. Accordingly, these months can be employed to estimate the unconditional (or pre-ASR 147) systematic risk levels of lessees and, hence, are designated as the control period;

(ii) January 1972-December 1973: A second important time period revealed in Figure 1 is the two years commencing with the adoption of APB Opinion 22 under which firms were required to disclose their significant accounting policies, including those relating to leases, and ending just prior to the initial disclosure of the ASR 147 information. This 24-month period can be characterized as one in which the lease accounting controvery resurfaced for the first time since the mid-sixties. Not only were the deliberations of the APB and SEC brought to the attention of market participants, but with the adoption of APB Opinion 22 these participants were in a better position to determine the specific accounting practices of lessees with respect to their financial leases. In short, if there was an anticipatory market reaction to the initial ASR 147 disclosures, it is likely to have occurred during this period. For these reasons, the two years ending December 1973 are included in the aggregate test period rather than in the control period. Recognizing, however, that the ASR 147 information per se was not available to market participants during this time period, it is designated as the pre-disclosure test sub-period; and

iii) January 1974-December 1975: Finally, observe that the effective date of the ASR 147 disclosure requirements is November 1973. Since firms are allowed a maximum of 90 days after their fiscal year-end to file the 10-K annual report, the noncapitalized financial lease information would have been available for the first time in the period commencing the first quarter of 1974.[12] Therefore, it seems reasonable to view the 24 months following December 1973 as the post-disclosure test sub-period.

Note that a comparison of the systematic risk levels in the aggregate test

period (January 1972-December 1975) with those in the control period (January 1968-December 1971) permits one to ascertain the average market reaction to the lease accounting policy deliberations in general and to the ASR 147 disclosures in particular. In contrast, the timing of the market reaction to the ASR 147 disclosures can be ascertained by examining the systematic risk levels in the pre-disclosure (January 1972-December 1973) and post-disclosure (January 1974-December 1975) test sub-periods in relation to the risk levels prevailing in the control period.

The second major implementation issue concerns the problem of potential biases which affect inter-temporal comparisons of systematic risk. Research by Blume [1971, 1975] among others indicates that the estimated systematic risks of individual securities, and to a lesser extent portfolios, exhibit a tendency to regress towards the grand mean of unity — the β for the market portfolio -- over time. Moreover, the severity of this phenomenon appears to be positively associated with the deviation of the estimated parameter from unity, i.e., the more extreme the estimated β -- high or low -- in one period, the higher the likelihood that it is less extreme in the next period. Since this source of potential bias can seriously affect our assessments of the risk levels of lessees in the control, pre-disclosure and post-disclosure test periods, it seems essential that a methodological approach which explicitly controls for it is employed in our experiment.

One such approach was advocated initially by Gonedes [1975] and entails not only the selection of "control" samples of nonleasing firms,[13] but also the construction of iso-risk portfolios having a β level equal to unity in the pre-test or control period. Essentially, the individual securities assigned to each of the various lease and related control portfolios are combined (weighted) in such a way as to result in a portfolio with estimated systematic risk equal to unity in the control period, i.e., January, 1968-December, 1971. The weights for the control period are then employed to estimate the portfolio β in the subsequent pre- and post-disclosure test periods. As the lease portfolios and their related nonleasing counterparts have estimated control period systematic risks equal to unity in the context of this methodology, comparisons with the estimated risk parameters for the test periods can be expected to be free from

potential biases that might be caused by the regression-to-the-mean problem. Furthermore, since the effect of changes in general economic conditions on risk, if any, can be expected to affect both the lease and nonlease groups,[14] differences in the risk behavior between the two sets of portfolios can be attributed, more appropriately, to the disclosure of financial lease information.

III. DATA, SAMPLE AND METHOD OF ANALYSIS

Data and Identification of Lease Sample

A magnetic tape that includes the COMPUSTAT file of financial statement data and the related monthly security return file prepared by the Center for Research into Security Prices (CRSP) served as the primary database for this study. Although over 1400 companies are included in this database, only 152 of them satisfied the following three criteria in order to be included in the sample of lessees:

i) Long-term capital structure data, including the present value of noncapitalized financial leases, were available for at least three fiscal years following implementation of ASR 147 (i.e., 1973-75 for calendar year firms);

ii) Monthly rates of return on the firm's common stock were available for at least the 8-year period commencing January, 1968; and

iii) The present value of financial lease commitments (capitalized plus noncapitalized) of a firm is equal to at least 10% of its conventional long-term debt in each of the fiscal years following implementation of ASR 147.

While the first two criteria specify the minimum data requirements of the experimental design introduced previously, the third was imposed in order to include in the sample of lessees only those firms that engage in a significant amount of long-term noncancellable lease financing in relation to conventional debt financing. Note that as a result of this requirement the effect of financial leases on the debt-equity ratio of all sample firms is at least 10%.

An industry profile of this lease sample appears in Table 1. It will be readily observed that although a fairly wide spectrum of industries is represented in the sample, there appears to be some notable exceptions, e.g. mining. Moreover, the relatively heavy representation of the service sector such as transportation and retail trade reflects the popularity of leasing as a

financing device in those industries. It is important for readers to recognize, however, that stemming from the database (COMPUSTAT-CRSP), the sample probably is composed of larger than average firms. As a consequence, the findings reported here may not necessarily apply to firms other than those that are larger and more established.

Lease Portfolio Formation and Risk Estimation Issues

From a methodological point of view, the experimental lease portfolios were determined by partitioning the sample of lessees on the basis of the relative amount of noncapitalized financial leases in their respective capital structures. More specifically, the effect of noncapitalized financial leases on the capital structure of each sample firm was computed as the increase in its post-disclosure period debt-capital ratio (capitalization form of the debt-equity ratio)[15] attributable to the inclusion of the present value of such leases. In other words, it was determined as the difference between the average debt-capital ratio (over the post-disclosure period) including noncapitalized leases and that excluding it.[16] Next, these differences representing the noncapitalized lease effect for the 152 sample firms were ranked from minimum to maximum and the quartiles from the distribution served as the basis for assigning sample lessees to one of four groups (portfolios),[17] i.e., lowest quartile to lease portfolio L1, next lowest to lease portfolio L2 and so on. As such, portfolio L1 includes lessees whose debt-equity ratios are least affected by the inclusion of noncapitalized financial leases, while portfolio L4 includes those lessees whose debt-equity ratios are affected the most. Some summary statistics pertaining to the noncapitalized lease effect, as well as the capital structure of firms included in each of these four portfolios is presented in Table 2.

As might be expected, the effect of noncapitalized financial leases varies quite dramatically across the four experimental portfolios. For instance, while such leases represent, on average, less than 1% of the long-term capitalization of firms included in portfolio L1, they simultaneously account for over 25% in the case of lessees included in portfolio L4 (see column (1) in Table 2). Additionally, it would appear from a comparison of either columns (1) and (3) or columns (3) and (5) that the incidence or degree of noncapitalized lease

financing is somewhat inversely related to the amount of outstanding conventional debt (including preferred stock and capitalized lease obligations). The range of the post-disclosure ratios shown in column (5), consequently, is not as large as that implied by the noncapitalized lease measure reported in column (1). Finally, the degree of stability or instability in the capital structure of lessees (over the control and post-disclosure periods) that can be attributed to factors other than noncapitalized leases is revealed by a comparison of the debt-capital ratios in columns (2) and (3). It will be readily observed that the differences between the ratios applicable to the two periods are marginal at best. Statistical test results, in fact, indicate that these amounts are not significantly different from zero at any reasonable probability level. In other words, the null hypothesis of stability in the reported capital structure -- excluding the effect of noncapitalized financial leases — for each of the four groups of lessees cannot be rejected.

The analysis then entailed the construction of an iso-risk portfolio with estimated control period β equal to unity for each group of lessees. In this regard, the systematic risk (β) of each firm in the sample was estimated for the control period by regressing its excess return — monthly rate of return net of the corresponding return on 30-day treasury bills -- on that for the "market" portfolio,[18] using 48 months of data ending December 1971. Next, the firms in each of the four lease portfolios were ranked on their control period β estimate from minimum to maximum. The lower and upper halves of the ranked array for each lease portfolio then were used to form two groups — a low and a high risk group — and the relative (control period) systematic risks for each of these risk groups were computed as the arithmetic average of the control period β estimates applicable to the individual securities. Third, for each of the four lease portfolios, an iso-beta portfolio with estimated control period systematic risk equal to unity was constructed as a linear combination or weighted average of its related low and high risk groups.[19]

Table 3 presents some data on the control period risk estimates and level of diversification for the four lease portfolios, as well as the aggregate sample. At least two facets should be noted. First, the relative risk levels for the four lease portfolios with unequal (actual) control period β s range

from a low of 0.986 for L3 to a high of 1.099 for L4. Parametric analysis of covariance reveals that these $\hat{\beta}_p$, indeed, are significantly different from each other. On the other hand, by construction, all of the equivalent risk counterparts have estimated control period βs equal to unity. These latter portfolios of lessees, consequently, can be expected to be less affected by the regression or risk estimation biases described previously than their unequal risk counterparts. Second, consistent with expectations all of the portfolios are well diversified. This observation is substantiated by the coefficients of correlation between the excess returns on the various lease portfolios and that on the "market" portfolio (Fisher Index): the correlation coefficients for the lease portfolios with control period $\hat{\beta}_p$ equal to unity are all in excess of 0.97.

Finally, systematic risk estimates for each of these lease portfolios with equivalent control period risk were obtained for the various test periods -- aggregate (1/72-12/75), pre-disclosure (1/72-12/73) and post-disclosure (1/74-12/75) -- by regressing the portfolio's excess return for the applicable months on that for the "market" (Fisher Index).[20] Multivariate statistical procedures, which are elaborated on a later point, were employed to determine whether significant changes in the systematic risk parameter occurred between the control and test periods, as well as between the pre- and post-disclosure subperiods.

Selection of Control Portfolios and Related Estimation Issues

While the construction of iso-risk portfolios attempts to overcome the regression-to-the-mean problem, that methodology does not explicitly control for the effect of exogenous factors such as, for instance, changes in general economic conditions on risk.[21] As mentioned previously, this can be accomplished by examining the risk behavior of the (financial) lease portfolios vis-a-vis control portfolios of firms that do not engage in financial leasing (hereafter, referred to as nonleasing firms for convenience).[22] For each of the four experimental portfolios of lessees accordingly, control portfolios of nonleasing firms were constructed by matching on the basis of estimated control period systematic risk.[23]

More specifically, a sample of 734 nonleasing firms was identified at the

outset,[24] and the control period systematic risk for each of these firms was estimated by regressing its excess return on that for the "market" portfolio (Fisher Index), using 48 months of data ending December 1971. Next, the 38 firms included in each of the four lease portfolios were ranked on control period $\hat{\beta}$, a procedure that was repeated for the sample of nonleasing firms. The risk distribution applicable to a given lease portfolio was compared with that for the nonleasing sample and, for each of the four lease portfolios, 38 nonleasing firms were selected by matching (lease and nonlease firms) on control period $\hat{\beta}$ to constitute its first control group (portfolio).[25] A further nine control groups — each consisting of 38 nonleasing firms — then were identified in an analogous manner for each of the four lease portfolios.[26] Finally, the 10 groups of nonleasing firms pertaining to a given experimental lease portfolio were combined to form a "composite" control portfolio.

Each of these composite portfolios should be viewed as a highly diversified portfolio of nonleasing firms, which have control period risk levels that are equivalent to those of their leasing counterparts. The level of diversification, in fact, can be expected to be sufficiently high that each of the composite portfolios can be employed as a surrogate for an appropriately levered "market" portfolio, i.e., the returns on the two portfolios can be expected to be highly, if not perfectly correlated. Under these circumstances, the nondiversifiable risk of a lease portfolio relative to its control counterpart can be specified as:

$$\hat{\phi}_L = \rho(\tilde{r}'_L, \tilde{r}'_C)\,\sigma(\tilde{r}'_L)/\sigma(\tilde{r}'_C) \tag{6}$$

where $\hat{\phi}_L$ = estimated nondiversifiable (systematic) risk of lease portfolio L (L=L1,...,L4) relative to its composite control portfolio C (C=C1,...,C4);

$\rho(\tilde{r}'_L, \tilde{r}'_C)$ = coefficient of correlation between the excess return on the lease portfolio, r'_L, and the excess returns on its control counterpart, r'_C; and

$\sigma(\tilde{r}'_L), \sigma(\tilde{r}'_C)$ = standard deviation of the excess returns on portfolios L and C respectively.

Note the $\hat{\phi}_L$ represents a measure of the volatility of lease portfolio L vis-a-vis its control counterpart C and can be estimated as the slope of an OLS regression of r'_L on r'_C.[27] Perhaps the principal advantage of this risk measure is that it can be tested conveniently in both inter-temporal and cross-sectional

settings.

Table 4 includes some descriptive statistics on the four composite control portfolios (designated as C1 through C4) and their related sub-portfolios. The equivalent risk versions with control period $\hat{\beta}_p$ equal to unity were constructed by employing procedures that were described previously in connection with the formation of the iso-risk lease portfolios. An examination of the mean square error (MSE) or mean absolute deviation (MAD) statistics reported in Table 4 confirms that the lease and control portfolios are similar in terms of control period systematic risk. For instance, the absolute deviation between the risk levels of securities in the lease portfolios and those included in their control counterparts range, on average, from 1.128% for C1 to 2.515% for C4. Furthermore, consistent with expectations, all of the composite control portfolios are highly correlated with the Fisher Index. In fact, over 99% of the variability in the excess returns on the equivalent risk versions of portfolios C1-C4 is explained by the Fisher Index (see the coefficients of determination, ρ^2, shown in the last column). This, of course, suggests that it is appropriate to employ portfolios C1-C4 for the estimation of $\hat{\phi}_L$(L=L1,...,L4).

IV. DISCUSSION OF EMPIRICAL RESULTS

Risk Adjustment Experience of the Lease and Related Control Portfolios

Some measures pertaining to the risk behavior of the lease portfolios (with control period $\hat{\beta}_p$ equal to unity) and their composite nonleasing counterparts[28] over the three periods of interest -- the aggregate test period (1/72-12/75), the pre-disclosure test subperiod (1/72-12/73) and the post-disclosure test subperiod (1/74-12/75) -- are presented in Table 5. Specifically, Panel A shows for each of these test periods: (i) the systematic risk estimates for the four lease portfolios, $\hat{\beta}_L$, along with the estimated parameter for the corresponding control portfolios, $\hat{\beta}_C$; (ii) two indicators of the volatility of the lease portfolios relative to their nonlease control composites — ratio of estimated systematic risks, $\hat{\beta}_L/\hat{\beta}_C$, and the risk measure $\hat{\phi}_L$; and (iii) the coefficients of correlation between the excess returns on a given lease portfolio, its control portfolio and the "market" portfolio (Fisher Index).[29] Panel B of Table 5 includes some statistical test findings regarding these risk measures. Several aspects of the results just presented should be highlighted.

Consider, initially, the systematic risk experience during the aggregate 48-month test period ending December 1975. At least three interesting phenomena are revealed by a survey of the results in columns (1) - (4) of Table 5. First, observe that the estimated systematic risk levels of all four control portfolios of nonleasing firms, $\hat{\beta}_C$, are in the range of 0.887-0.902 for the aggregate test period (1/72-12/75). Since all of the portfolios, by construction, have estimated systematic risks equal to unity in the pre-test or control period (1/68-12/71), the risk levels appear to have declined by about 10-11% during the aggregate test period. As mentioned previously, these declines should be attributed to the impact of changes in general economic conditions on risk and, consequently, can be expected to affect the lease portfolios as well.[30]

Second, a seemingly differential market reaction -- in terms of systematic risk revaluations --to the four groups of lessees is revealed in Panel A of Table 5. On the one hand, the risk experience of lease portfolios 1 and 2 (i.e., L1 and L2), which include lessees with a lower than average amount of noncapitalized leases in their capital structures appear to parallel that of their nonleasing counterparts. Note, in this regard, that the estimated systematic risks of portfolios L1 and L2 declined from unity in the control period to 0.924 and 0.943 in the aggregate test period, respectively. Moreover, results of statistical tests (analysis of covariance),[31] as shown in line (i) of Panel B, confirm that the 1972-75 risk levels of these two groups of lessees are not significantly different from the corresponding levels of their control portfolios. In other words, the systematic risk experience of portfolios L1 and L2 during the aggregate test period is statistically indistinguishable from that of control samples of nonleasing firms.

On the other hand, a remarkably different configuration of risk adjustments appears to have been encountered for those lessees included in portfolios L3 and L4 -- lessees with a higher than average amount of noncapitalized leases in their capital structures. While the 1972-75 systematic risk levels of their control portfolios declined to 0.893 and 0.887, the corresponding parameter for these two groups of lessees increased to 1.01 and 1.18 respectively. The risk levels of lease portfolios L3 and L4, in other words, appear to have been revalued upwards vis-a-vis their control counterparts by about 13% and 33%

respectively, i.e., the systematic risk ratios ($\hat{\beta}_L/\hat{\beta}_C$) increased from unity in the control period to 1.132 and 1.331 respectively, in the aggregate test period. Furthermore, statistical test results reported in line (i) of Panel B indicate that the 1972-75 risk levels of these two groups of lessees, indeed, are significantly different from that of their control portfolios: the null hypothesis $\hat{\beta}_L = \hat{\beta}_C$ can be rejected at the 5% level or higher.

Third, it would appear that the preceding remarks are also tenable in the situation where the nonleasing composite portfolios are employed as surrogates for the "market" index in the estimation of systematic risk. This can be observed by comparing the configuration of the risk measure $\hat{\phi}_L$ in columns (1)-(4) of Panel A with the corresponding values of the quotient $\hat{\beta}_L/\hat{\beta}_C$. The remarkable similarity between the measures can be attributed to the high intercorrelation levels shown in Panel A of Table 5. Note that the measure $\hat{\phi}_L$ is the estimated slope of an ordinary least squares regression of the excess returns for a given lease portfolio, r_L', on that for its control composite, r_C'. Standard univariate tests for regression coefficients,[32] moreover, indicate that while the estimated parameters for portfolios L1 and L2 are not significantly different from unity during the aggregate test period, they are indeed statistically different in the case of L3 and L4 (see test (ii) in Panel B). These findings, of course, are consistent with those reported above in connection with $\hat{\beta}_L$ and $\hat{\beta}_C$.

As mentioned previously however, one advantage of the measure $\hat{\phi}_L$ over its $\hat{\beta}_L/\hat{\beta}_C$ counterpart is that it can be tested quite conveniently in a multivariate setting as well. In this regard, lines (iii)-(v) in Panel B present the results of some cross-sectional multivariate tests (analysis of covariance)[33] of the hypothesis that the market's reaction during the aggregate test period was homogeneous across the four groups of lessees, i.e., the estimated regression coefficients — slopes ($\hat{\phi}_L$) and intercepts ($\hat{\alpha}_L$) — are the same across the four lease portfolios. A quick survey of these results confirms the presence of a differential market reaction over the aggregate test period: the joint null hypothesis of equality in $\hat{\phi}_L$ and $\hat{\alpha}_L$ for the four groups of lessees can be rejected at the 1% level or higher (see test (v) in Panel B). The results for tests (iii) and (iv), furthermore, indicate that this rejection can be

attributed solely to $\hat{\phi}_L$. In other words, from a cross-sectional viewpoint the systematic risk experience of the four groups of lessees was, indeed, significantly different during the aggregate test period.

The discussion to this point has been premised on an analysis of the average market reaction in the 48 months surrounding the initial financial lease disclosures. One shortcoming of this analysis is that it masks an examination of the timing of the market's reaction to the initial ASR 147 lease disclosures. Yet, such an examination is essential if one is to determine whether the initial ASR 147 disclosures per se conveyed new information to warrant risk adjustments in the post-disclosure period (1974-75) or whether market participants, by turning to alternative sources, had correctly anticipated the information effects of the initial disclosures and had impounded it in stock prices during the pre-disclosure period (1972-73). The aggregate 48-month test period, therefore, was sub-divided into two nonoverlapping periods — pre-disclosure and post-disclosure test subperiods -- and the risk levels prevailing in each of these two subperiods were estimated for the various lease and control portfolios. These estimates along with related statistical test results are shown in columns (5)-(12) of Table 5. Moreover, to facilitate a visual examination of the timing of the market's risk adjustment process, "moving" systematic risk estimates ($\hat{\beta}_L$,$\hat{\beta}_C$ and $\hat{\phi}_L$) were obtained for each month in the pre- and post-disclosure subperiods by using 24 months of historical data.[34] Plots of the "moving" $\hat{\beta}_L$ and $\hat{\beta}_C$ parameters -- in six month intervals -- are included in Figure 2, while the corresponding graphs for the risk measure $\hat{\phi}_L$ and the quotient $\hat{\beta}_L/\hat{\beta}_C$ are contained in Figure 3.

An examination of these results indicates that while lease portfolios L2 and L3 did not experience any significant adjustments in their systematic risk levels during the pre-disclosure test period (1972-73), this does not seem to be the case for L1 and L4. During the two years prior to the release of ASR 147 data, market participants appear to have reassessed the risk levels of these two groups of lessees upwards (vis-a-vis their control counterparts) by about 12-13% and 23-25% respectively. Note, in this regard, that the systematic risk ratio $\hat{\beta}_L/\hat{\beta}_C$ for L1 and L4 increased from unity to 1.129 and 1.246 in the pre-disclosure subperiod, while the relative risk measure $\hat{\phi}_L$ increased to 1.125 and

FIGURE 2

PLOTS OF 24-MONTH "MOVING" SYSTEMATIC RISK ESTIMATES FOR LEASE PORTFOLIOS AND RELATED COMPOSITE CONTROL PORTFOLIOS

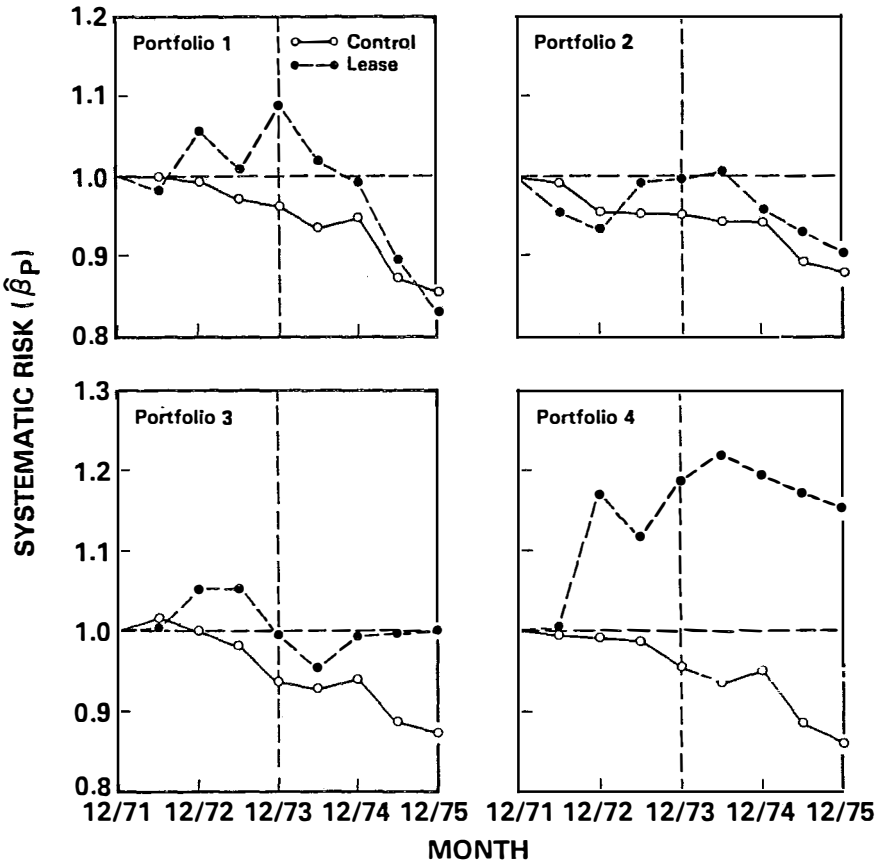
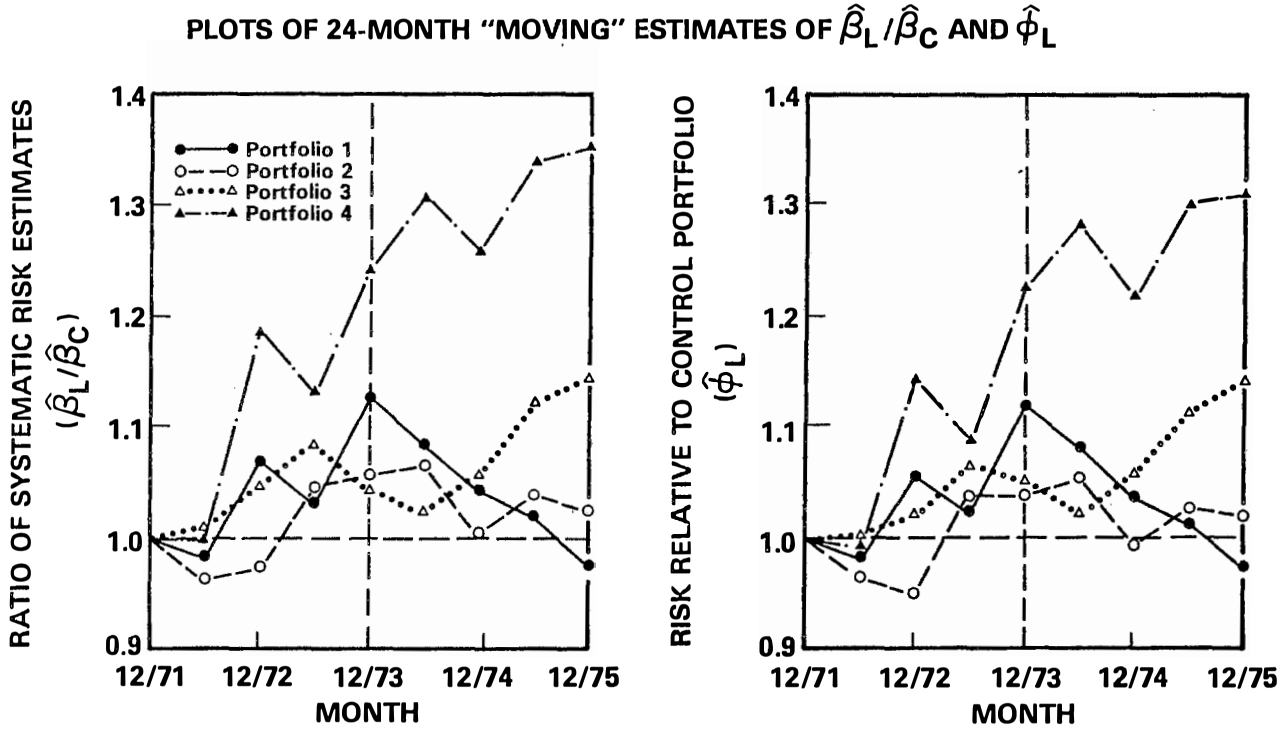


FIGURE 3


PLOTS OF 24-MONTH "MOVING" ESTIMATES OF $\hat{\beta}_L/\hat{\beta}_C$ AND $\hat{\phi}_L$
RATIO OF SYSTEMATIC RISK ESTIMATES ($\hat{\beta}_L/\hat{\beta}_C$)
RISK RELATIVE TO CONTROL PORTFOLIO ($\hat{\phi}_L$)
Portfolio 1
Portfolio 2
Portfolio 3
Portfolio 4
1.4
1.3
1.2
1.1
1.0
0.9
12/71
12/72
12/73
12/74
12/75
MONTH

1.228 respectively (see Panel A of Table 5). Additionally, the univariate statistical results reported in Panel B of that table (tests (i) and (ii)) indicate that the pre-disclosure risk levels of only these two lease portfolios are significantly different from that of their control counterparts.

Turning to the post-disclosure test period results (1974-75), one finds a somewhat different set of risk adjustments. On the one hand, the post-disclosure risk level of portfolio L1 in particular appears to have been revalued downwards, quite substantially, relative to its control group: observe that the measures $\hat{\beta}_{L1}/\hat{\beta}_{c1}$ and $\hat{\phi}_{L1}$ declined from pre-disclosure levels of 1.129 and 1.125 respectively to 0.982 and 0.975 in the post-disclosure subperiod.[35] The relative risks of portfolios L3 and L4, on the other hand, appear to have experienced further upward adjustments vis-a-vis their control counterparts.[36] For example, note that the systematic risk ratios $(\hat{\beta}_L/\hat{\beta}_C)$ for L3 and L4 increased from 1.051 and 1.246 in the pre-disclosure subperiod to 1.145 and 1.351 in the post-disclosure subperiod, respectively. Univariate tests (see lines (i)-(ii) in Panel B of Table 5), moreover, confirm that the post-disclosure risk levels of these two groups of lessees, indeed, are statistically different from the corresponding values applicable to their control portfolios.

A final point should be noted in connection with the results in Table 5. Essentially, the multivariate statistical results reported in lines (iii)-(v) of Panel B reveals an interesting finding: while the null hypothesis of equality in $\hat{\phi}_L$ across the four groups of lessees can be rejected for the post-disclosure subperiod, it cannot be rejected at even the 10% level of significance for the pre-disclosure subperiod. It would appear, accordingly, that from a cross-sectional perspective the market, in fact, did react differentially to firms included in the four lease portfolios, but only in the post-disclosure subperiod, i.e., the time period following the release of ASR 147 lease information.

The preceding analysis relies on the composite portfolios of nonleasing firms as a means of controlling for the effects of exogenous factors on the risk parameter. To what extent, however, are the related results sensitive to the use of alternative control portfolios? In order to address this issue, the analysis was repeated but in this instance by employing the 10 control groups or

subportfolios of nonleasing firms that pertain to each of the four composite portfolios.[37] Recall that each of these composite control portfolios was formed by combining the securities included in their respective subportfolios (see Table 4).

Table 6 shows for the three alternative time periods of interest: (i) the ratio of the systematic risk estimate for a given lease portfolio ($\hat{\beta}_L$) and that for each of its 10 control counterparts ($\hat{\beta}_{C,i}$, i = 1,...,10); and (ii) the computed F-statistics, in parentheses, associated with the test of the null hypothesis that $\hat{\beta}_L = \hat{\beta}_{C,i}$. To facilitate comparisons, the corresponding results for the composite control portfolios are also included.

A line-by-line survey of Table 6 indicates that the risk measure reported there ($\hat{\beta}_L/\hat{\beta}_{C,i}$) is quite sensitive to the choice of a control sample. While this remark applies to all four lease portfolios, the results of significance tests are affected especially in the case of portfolios L1 in the pre-disclosure test period (1972-73); L2 in the pre-disclosure (1972-73), as well as aggregate (1972-75) periods; and L3 in the post-disclosure (1974-75) and aggregate (1972-75) periods. Notwithstanding these differences, the relationships discussed previously in connection with the composite control portfolios, by and large, are also conveyed in Table 6. This, of course, is to be expected: the use of the composite portfolios can be viewed as a convenient way of combining or aggregating the results pertaining to the individual control subportfolios.

Hypothesis Testing in A Multivariate Time-Series Framework

A final issue remains outstanding. Essentially, to what extent is the configuration of risk adjustments described above consistent with the hypothesis that the ASR 147 lease disclosures conveyed "new" information relevant to equity valuation? As mentioned previously (see relationship (5) in Section II), a test of this issue requires one to determine whether the post-disclosure risk levels of the lease portfolios are statistically different from those prevailing in the pre-disclosure subperiod. Similarly, a significant difference between the pre-disclosure subperiod and control period risk levels would be consistent with the statement that the market attempted to impound the risk-information effects of the ASR 147 disclosures prior to their initial release. In short, it appears necessary to test, statistically, for the significance of changes in risk levels

of the lease portfolios (relative to their nonleasing control counterparts) between the alternative control and test periods of interest.

Accordingly, the monthly excess returns pertaining to the lease portfolios and their control composites for the 8 years ending December 1975 initially were cast into a one-way analysis of covariance layout. This layout explicitly allowed for the effects -- intercepts and slopes (the risk measure ϕ_L) -- to vary not only across the four groups of lessees, but also over the various experimental periods. Next, the differences between the estimated slope coefficients or relative risk parameters for the alternative time periods in particular were tested in the context of a multivariate framework by employing the Scheffé Interval Test, or the "S-method" as it is referred to in Scheffé [1959].

Table 7 presents the results of the Scheffe test in connection with null hypotheses involving the aggregate test period (Panel A), as well as the individual test subperiods (Panels B & C). Note that the parameter $\hat{\phi}^*_L(j)$ represents the estimated difference between the relative risk measure of portfolio L in test period j and that of the lease portfolios pooled in the control period:[38]

(7) $$\hat{\phi}^*_L(j) = \hat{\phi}_L(j) - \hat{\phi}_{LP}(k) \qquad j \neq k$$

where $\hat{\phi}_L(j)$ = relative risk estimate of lease portfolio L in test period j; L = L1,...,L4 and j = A (aggregate test period: 1/68-12/75), B (pre-disclosure subperiod: 1/72-12/73), and C (post-disclosure subperiod: 1/74-12/75); and

$\hat{\phi}_{LP}(K)$ = estimated risk of lease portfolios pooled in control period K(1/68-12/71).

A survey of the results in Panel A shows that the joint null hypothesis $\hat{\phi}^*_{L1}(A) = \hat{\phi}^*_{L2}(A) = \hat{\phi}^*_{L3}(A) = \hat{\phi}^*_{L4}(A) = 0$ can be rejected at the 1% level or higher. Moreover, tests of the individual components of this joint hypothesis indicate that this rejection can be attributed, principally, to lease portfolios L3 and L4. This, of course, suggests that at least for these two groups of lessees market participants did, in fact, attempt to impound the risk-information effects conveyed by the noncapitalized lease data in the aggregate 48-month period covering the lease accounting policy deliberations and the initial ASR 147 disclosures.

Turning to Panel B of Table 7 one finds some evidence as to whether the

relative risks of the lease portfolios are significantly different in the respective pre-disclosure (B) and post-disclosure (C) test subperiods vis-a-vis the control period. It will be readily noted that with the exception of $\hat{\phi}^*_{L4}(C)$, none of the parameters are statistically significant at even the 10% level. In other words, the results in Panel B indicate that the relative risks of lease portfolios L1-L3 in both the pre-disclosure and post-disclosure subperiods are not significantly different from the levels prevailing in the control period. On the other hand, while the post-disclosure risk level of portfolio L4 is statistically different from that in the control period, this is not the case for the pre-disclosure parameter.

It is important to recognize that these latter results are based on an analysis of covariance layout which allows for the risk adjustments to vary between the four groups of lessees in <u>both</u> the pre-disclosure and post-disclosure subperiods. To what extent, however, are they sensitive to alternative specifications? For instance, cross-sectional test results discussed previously (see Table 4) indicate that it would be more appropriate to employ a layout which allows the risk adjustments to vary between the four groups of lessees, but only in the post-disclosure period.[39] Consequently, the lease portfolios were pooled during the pre-disclosure period to obtain an estimate of the pooled parameter $\hat{\phi}^*_{LP}(B)$ and the results of the Scheffé test for this alternative specification are shown in Panel C.

An examination of Panel C reveals that in addition to $\hat{\phi}^*_{L4}(C)$, the estimated parameters $\hat{\phi}^*_{LP}(B)$ and $\hat{\phi}^*_{L3}(C)$ are stochastically different from zero albeit at a lower (10%) level of significance. This result suggests that, contrary to the discussion in connection with Panel B, a significant risk adjustment appears to have occurred during the pre-disclosure period. Further, the post-disclosure risk levels of both lease portfolios L3 and L4 are statistically different from those prevailing in the control period. Additional multiple comparison tests, however, indicate that while the post-disclosure parameter for L4, $\hat{\phi}^*_{L4}(C)$, is stochastically different (larger) than the pooled pre-disclosure estimate, $\hat{\phi}^*_{LP}(B)$, this is not the case for lease portfolio L3.

These empirical findings are consistent with the hypothesis that the initial ASR 147 lease disclosures did, in fact, convey sufficiently "new"

information so as to cause market participants to reassess the relative risks of the common stocks of lessees included especially in portfolio L4. The evidence as to whether a statistically significant market reaction occurred in anticipation of the ASR 147 disclosures is less clear cut. While the multivariate tests in Panel B of Table 7 deny the existence of such an anticipatory reaction, those reported in Panel C confirm the presence of one — albeit somewhat weakly -- during the two-year period preceding the initial release of ASR 147 data.

V. SUMMARY AND CONCLUSIONS

This paper has attempted to evaluate, empirically, whether the ASR 147 disclosures of the present value of noncapitalized financial leases conveyed information regarding the relative risks and, hence, valuation of lessee common stocks. By and large, the evidence presented here is consistent with the information content hypothesis: the present value disclosures under ASR 147 did, indeed, convey information relevant to risk-return assessments. In particular, the results indicate that in the time period surrounding the initial ASR 147 disclosures, market participants appear to have adjusted upwards the nondiversifiable risk levels of the common stocks of lessees vis-a-vis those for control samples of nonleasing firms. This market reaction appears to be especially observable for lessees with a higher than average amount of noncapitalized financial leases in their capital structures. Furthermore, the configuration of risk adjustments from a temporal viewpoint indicates that the ASR 147 disclosures contained sufficiently "new" information so as to cause significant revisions in the relative risk assessments of market participants. This appears to be the case despite possible market attempts to impound the risk-information effects in advance of the disclosures. It would appear, accordingly, that the SEC's views concerning the potential utility of the noncapitalized lease information were shared by investors and other capital market agents.

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Footnotes

1. The principal characteristic of a financial (or financing) lease is the lessee's intention to acquire substantially all of the economic property rights vested in the asset and to employ the contractual arrangement as a device for financing this transaction. Consequently, the term of a financial lease, usually, corresponds quite closely to the service life of the asset, and the contractual commitment, normally, is noncancellable. Having conveyed substantially all of the economic benefits and risks incidental to ownership of the asset, the lessor's role is reduced, primarily, to one of providing a type of debt-financing service.

2. See, for instance, FASB [1974].

3. See Accounting Series Release 147, SEC [1973]. Effective as of November 1973, the disclosure requirements of ASR 147 are extensive and parallel those of FASB Statement 13 (see FASB, 1976). Although the capitalization basis of the accounting and reporting standards at that time (APB Opinions 5 and 31) was unaltered, ASR 147 extended the disclosure requirements to include, in particular: (i) the present value of "noncapitalized financial leases"; (ii) the interest rate used in computing the present value; and (iii) the impact on net income if such noncapitalized financial leases were capitalized. Since the capitalized amount of these financial leases was disclosed under APB Opinion 5 and 31, the ASR 147 footnote disclosure of the noncapitalized amount enables investors to determine the aggregate present value of such leases in a lessee's capital structure.

4. There are two reasons why the information content tests were not extended to include the FASB Statement 13 disclosures. First, significant problems were encountered in obtaining sufficient post-disclosure data. Second, and perhaps more importantly, it can be argued that aside from the form of disclosure (capitalization vs. footnote presentation) and some technical details, the FASB 13 requirements are virtually identical to those of ASR 147. Under these circumstances, the FASB 13 disclosures (effective from 1977) cannot be expected to convey new information -- information over and above that available to market participants under ASR 147 since 1973.

5. The findings reported in this paper are at variance with those of Finnerty, Fitzsimmons and Oliver [1980], who state that their empirical results lead to the conclusion that the SEC's ASR 147 "had little effect on the market's assessment of systematic risk." A careful examination of that work, however, reveals that it contains serious methodological shortcomings, e.g. failure to deal with the problem of measurement errors, including the effect of the widely documented "regression-to-the-mean" bias on systematic risk. The effect of these limitations is to bias the results in favor of the null hypothesis of no observable effect on risk levels. To some extent the authors recognize this when they indicate that future research involving the creation of portfolios could be undertaken to overcome the problem.

6. The issue as to whether this well-known model does, in fact, have descriptive validity as an equilibrium model of capital asset prices is controversial and has attracted considerable attention. For a recent survey of the underlying issues, see Ross [1978].

7. Marginal asset risk is defined as the contribution of that asset to the standard deviation of the returns on the market portfolio:
$\sum_j \rho(\tilde{r}_j, \tilde{r}_m)\ \sigma(\tilde{r}_j) = \sigma(\tilde{r}_m)$.

8. See, for example, Turnbull [1977].

9. These results are obtained in the context of a firm with no debt in its capital structure which then issues debt and uses the proceeds to reduce its equity. Furthermore, it is premised on assumptions that parallel those underlying the capital asset pricing model in (1) above, e.g. borrowing and lending at the risk-free rate, and no corporate income taxes. While the

relaxation of these assumptions and related paradigm alters the functional form of the relationships introduced here, it adds little insights, if any, for our purposes.

10. Bowman [1980] addresses this issue, empirically, by estimating the parameters of a cross-sectional model that is derived from equation (4).

11. Although the present value of noncapitalized financial leases per se (PV_a) was not generally available to market participants prior to the ASR 147 disclosures, other pieces of information concerning the lessee's lease financing activities (such as rental expense, schedule of annual rentals and the amount of capitalized leases, if any) were disclosed in its financial statements. Under these circumstances, it seems reasonable to expect market participants to have attempted to estimate the present value number and its effect on the systematic risk of the lessee's common stock.

12. Strictly speaking, this is applicable for firms with fiscal years ending December and January. An examination of the fiscal year-ends of sample firms investigated here reveals that over 80% of them are in December and January; over 90% are in December-March. Sensitivity analysis reveals that the findings reported in this paper are virtually unaltered if firms having non-December/January fiscal year-ends are excluded from consideration.

13. Specific selection procedures are described at a later point.

14. Assuming, of course, that the relative risk profile of the two groups are the same in the pre-test or control period. The sample of nonleasing firms was selected in such a manner that this criterion is satisfied.

15. The capitalization form of the debt-equity ratio was used in order to minimize potential problems that might ensue because of nominal, or negative amounts of equity and was defined as: the book value of long-term debt capital (conventional debt, preferred stock, capitalized financial leases plus when applicable noncapitalized financial leases) divided by the book value of total long-term capital (debt capital as above plus book value of common equity). It can be demonstrated, analytically, that the relative rankings and, therefore, classification of lessees into groups (portfolios) is insensitive to the definition of the debt-equity ratio as either debt-to-common equity or debt-to-total capitalization.

16. The debt-capital ratios for this purpose were based on 1973-75 financial statement data; the computed ratio applicable to each of these years was averaged.

17. Although the construction of four groups or portfolios is arbitrary, that number represents a balance between obtaining as large a spread in the noncapitalized lease effect as possible and a reasonable number of securities in each portfolio. Note that since the sample is composed of 152 lessees, each of the four portfolios contains 38 firms.

18. Fisher's Arithmetic Index [see Fisher, 1966] was considered to the surrogate for the "market" portfolio.

19. The weights assigned to the two groups are:

$$W_{P,L} = \frac{\hat{\beta}_{P,H} - 1}{\hat{\beta}_{P,H} - \hat{\beta}_{P,L}} \qquad W_{P,H} = \frac{1 - \hat{\beta}_{P,L}}{\hat{\beta}_{P,H} - \hat{\beta}_{P,L}}$$

where $W_{P,L}$, $W_{P,H}$ = weights assigned to the low (L) and high (H) risk groups associated with lease portfolio p; note $W_{P,L} + W_{P,H} = 1$;

$\hat{\beta}_{P,L}$, $\hat{\beta}_{P,H}$ = control period systematic risk estimates for low and high risk groups associated with lease portfolio p.

For an elaboration, see Gonedes [1975].

20. The monthly rates of return relating to the iso-risk lease portfolios were computed as a weighted average of the returns on its corresponding low and high risk subportfolios by employing the control period weights, $W_{P,L}$ and $W_{P,H}$, described in note 19. The excess returns, in turn, were determined as the monthly portfolio returns net of the applicable rates of return on the risk-free asset (30-day treasury bill).

21. Turnbull [1977], for example, develops an analytical relationship between general economic variables and the systematic risk of a firm.

22. For our purposes, "operating leases" are viewed as executory rental contracts.

23. An attempt was also made to match firms by industry composition. Unfortunately, this was not possible for several of the industry categories (e.g. transportation and retail trade) due to the widespread prevalence of financial leasing. Furthermore, in many cases industry based matching yielded substantial divergences between the control period β of a lessee and that of its nonleasing control counterpart. This, of course, suggested that the overall nondiversifiable risk characteristics of the two sets of firms were quite different. Accordingly, the selection of control firms on the basis of industry composition per se was abandoned. In any event, sensitivity analysis reveals that the results reported in this paper are unaltered even if control firms were selected by matching on control period β but from a sample of only those nonleasing firms belonging to the industries shown in Table 1.

24. These firms are included in the COMPUSTAT-CRSP data base that was described previously and have neither capitalized nor noncapitalized financial leases outstanding, i.e., none of the firms report the existence of either capitalized financial leases in accordance with APB 5/31 or noncapitalized financial leases in accordance with ASR 147.

25. A computer-based sequential selection algorithm was written for this purpose. Essentially, firm k was selected from the nonleasing sample (without replacement) to be the control counterpart of lessee j (j=1,...,38) if the following condition was satisfied:

$$|\hat{\beta}_j - \hat{\beta}_k'| = \min_t |\hat{\beta}_j - \hat{\beta}_t'| \qquad t=1,2,\ldots,N$$

where $\hat{\beta}_j$ = estimated control period systematic risk of experimental firm (lessee) j; and
$\hat{\beta}_t'$ = estimated control period systematic risk of nonleasing firm t.

26. Note that since the selection procedures entail "sampling without replacement", the 10 control groups pertaining to a given experimental lease portfolio consist of 380 different nonleasing firms.

27. It can be shown that the measure $\hat{\phi}_L$ is linearly related to the quotient of $\hat{\phi}_L$ and $\hat{\phi}_C$:

$$\hat{\phi}_L = K \cdot [\hat{\beta}_L / \hat{\beta}_C]$$

where $\hat{\beta}_L = \rho(\tilde{r}_L', \tilde{r}_m')\, \sigma(\tilde{r}_L')/\sigma(\tilde{r}_m')$ = estimated systematic risk of lease portfolio L relative to the "market" portfolio (Fisher Index), where $\rho(\tilde{r}_L', \tilde{r}_m')$ is the coefficient of correlation between the excess returns on L and that on the "market" portfolio m (Fisher Index), and $\sigma(\tilde{r}_L')$ and $\sigma(\tilde{r}_m')$ are the standard deviations for the excess returns on L and m respectively;

$\hat{\beta}_C = \rho(\tilde{r}_C', \tilde{r}_m')\, \sigma(\tilde{r}_C')/\sigma(\tilde{r}_m')$ = estimated systematic risk of control

portfolio C relative to the "market" portfolio (Fisher Index); and

$K = [\rho(\tilde{r}'_L, \tilde{r}'_C)/\rho(\tilde{r}'_L, \tilde{r}'_m)] \cdot \rho(\tilde{r}'_C, \tilde{r}'_m)$ = a constant that is less than or equal to unity depending upon the degree of diversification of portfolio C.

28. Results for comparisons with the various individual subportfolios comprising the four nonleasing composites are discussed at a later point. Furthermore, although the empirical results presented in this paper are based on the equivalent risk portfolios with control period $\hat{\beta}_p$ equal to unity, sensitivity analysis reveals that the principal relationships and conclusions are unaltered if the actual (unequal) risk portfolios were employed instead.

29. As shown in note 27, these correlation coefficients help explain the relationship between $\hat{\beta}_L/\hat{\beta}_C$ and $\hat{\phi}_L$.

30. Recall that a given lease portfolio is equivalent to its control counterpart in terms of 1968-71 systematic risk, i.e., risk level prevailing in the control period.

31. This is often referred to as the "Chow test" in an inter-temporal setting. See Johnston [1972] or Bolch & Huang [1974] for an elaboration.

32. For convenience, the F-statistics pertaining to the computed t-values are shown in Table 5. Note that $F_{\alpha;1,r} = t^2_{\alpha/2;r}$.

33. An elaboration can be found in, for example, Bolch & Huang [1974].

34. Specifically, beginning with January 1972 the "moving" $\hat{\beta}_L$ and $\hat{\beta}_C$ was obtained by regressing the appropriate lease/control portfolio's excess return on that for the "market" (Fisher Index) by employing data for the 24-month period ending with the indicated month (i.e., January 1972). By repeating this process for each of the remaining months in the pre- and post-disclosure periods (February 1972-December 1975), a series of 48 "moving" risk estimates applicable to a given portfolio were obtained. Note that only those "moving" risk estimates which are separated by at least 24 months can be considered to be independent. The "moving" $\hat{\phi}_L$ estimates were obtained in an analogous manner by employing the composite control portfolios as surrogates for the market index.

35. The risk adjustment experience of lease portfolio L1 in relation to its control counterpart -- an upward adjustment in the pre-disclosure period followed by an offsetting downward adjustment in the post-disclosure period — suggests that market participants may have initially over estimated the amount of noncapitalized leases in the capital structures of these firms. Consequently, a corrective action appears to have ensued in the period following the ASR 147 disclosures. But, specifically, what factors help explain this configuration of expectations and, therefore, market reactions? Readers will appreciate that an unequivocal answer to this question cannot be provided since the underlying market expectations (forecasting) model is unobservable. An examination of the securities included in portfolio L1, however, provides some insights. Essentially, although that portfolio includes firms with the least amount of noncapitalized leases, it simultaneously is composed of firms with the highest level of capitalized leases. It would appear, in effect, that portfolio L1 firms had capitalized substantially all (over 80%) of their financial leases prior to the ASR 147 disclosures. To the extent market forecasts (of the amount of noncapitalized lease financing) for portfolio 1 were based on the magnitude of capitalized leases among other factors, then it seems reasonable that the forecasts can be expected to overestimate the amount of noncapitalized leases in the capital structures of the constituent firms.

36. This seems to occur despite the potential for $\hat{\beta}_{L4}$ to be downward biased during the post-disclosure period (vis-a-vis the pre-disclosure period) because of the regression-to-the-mean phenomenon. Note that the estimated risk parameter for the pre-disclosure period is significantly in excess of unity.

37. The higher levels of unsystematic risk associated with these subportfolios (see $\rho^2(r_p, r_m)$ in Table 4) suggest that it would be inappropriate to view them as surrogates for the "market" index. The risk measure $\hat{\phi}_L$, accordingly, was excluded from our analysis.

38. As might be expected, cross-sectional tests confirm that the control period (1/68-12/71) regression relationships -- intercepts $[\hat{\alpha}_L(K)]$ and slopes $[\hat{\phi}_L(K)]$ -- are homogeneous across the four groups of lessees. Recall that the four lease portfolios and their control composites, by construction, have $\hat{\beta}$s equal to unity during this period. Moreover, note that the parameter $\hat{\phi}_L^*(j)$ can be estimated, quite conveniently, in the context of a regression model with appropriate "dummy" variables for lease classes and experimental time periods.

39. Readers will appreciate that the specification or choice of a layout, a priori, is hindered if not prevented by the lack of knowledge of the underlying expectations model (re. noncapitalized lease effects) employed by market participants. Therefore, both versions are presented for evaluation by readers.

40. On the basis of the results in Panel B of Table 4, the intercepts for the pre-disclosure and post-disclosure subperiods were pooled on a cross-sectional basis, in addition to, of course, the slopes for the pre-disclosure subperiod. Nevertheless, sensitivity analysis reveals that the pooling of intercepts in the respective test periods has no effect on the findings reported here.

TABLE 1

Industry Profile of Sample Firms

SIC Code[a/]	Industry Class	# of Firms
200-211	Food and Tobacco	14
220-265	Textiles, Paper and Forest Products	12
280-287	Chemicals, Drugs, Cosmetic and Fertilizers	9
291	Petroleum Refining	8
295-327	Rubber, Glass, Leather and Building Products	14
331-349	Steel and Related Metal Products	6
353-364	Machinery, Office Equipment and Electrical Products	8
371-394	Other Manufacturing	10
401-470	Rail, Truck and Air Transportation	17
512-514	Wholesale Trade	3
531-533	Retail Trade - Department and Variety Stores	20
541-599	Retail Trade - Food, Drug and Miscellaneous	23
701	Hotels and Motels	3
Various	Other	4
		152

a/ Three-digit Standard Industrial Classification Code.

TABLE 2

Noncapitalized Lease Effect and Capital Structure: Some Summary Statistics

Lease Portfolio[a]	Mean and Standard Deviation (latter in parentheses)				
	Noncapitalized Lease Effect[b]	Debt-Capital Ratios Excluding Noncapitalized Financial Leases			Post-Disclosure Ratio Including Noncapitalized Leases [col(1) + (3)]
		Control Period	Post-Disclosure Sub-Period	Difference[c] [col(3)-(2)]	
	(1)	(2)	(3)	(4)	(5)
L1	0.0096 (0.0130)	0.4305 (0.1742)	0.4178 (0.1593)	-0.0127 (0.0885)	0.4273 (0.1652)
L2	0.0456 (0.0079)	0.3689 (0.1718)	0.3939 (0.1673)	0.0250 (0.1157)	0.4395 (0.1663)
L3	0.0859 (0.0200)	0.3759 (0.2001)	0.3799 (0.1989)	0.0039 (0.0681)	0.4657 (0.1993)
L4	0.2573 (0.1135)	0.3261 (0.1973)	0.3056 (0.1633)	-0.0205 (0.1076)	0.5628 (0.1348)
Sample	0.0996 (0.1113)	0.3753 (0.1882)	0.3743 (0.1763)	-0.0011 (0.0973)	0.4738 (0.1746)

a/ L1 = minimum noncapitalized lease effect portfolio, L4 = maximum noncapitalized lease effect portfolio.

b/ Difference between post-disclosure debt-capital ratio (capitalization form of debt-equity ratio) including noncapitalized financial leases and that excluding it.

c/ Statistical test results indicate that these differences are not significant at even the 10% level, i.e., the null hypothesis of stability in reported capital structure cannot be rejected.

TABLE 3

"Control Period" Risk Estimates and Degree of Diversification for Lease Portfolios
(48 Monthly Observations: January 1968 - December 1971)

Lease Portfolio[b]	Level of "Control Period" Systematic Risk[a]							
	Actual (Unequal) Risk		Low Risk Group		High Risk Group		Equivalent Risk with $\beta_p = 1$[c]	
	$\hat{\beta}_p$	$\rho(\tilde{r}'_p, \tilde{r}'_m)$	$\hat{\beta}_p$	$\rho(\tilde{r}'_p, \tilde{r}'_m)$	$\hat{\beta}_p$	$\rho(\tilde{r}'_p, \tilde{r}'_m)$	$\hat{\beta}_p$	$\rho(\tilde{r}'_p, \tilde{r}'_m)$
L1	1.085	0.981	0.793	0.937	1.379	0.971	1.000	0.977
L2	1.040	0.985	0.737	0.942	1.344	0.978	1.000	0.984
L3	0.986	0.973	0.688	0.907	1.285	0.956	1.000	0.973
L4	1.099	0.975	0.779	0.922	1.419	0.955	1.000	0.973
Sample	1.053	0.992	0.745	0.964	1.361	0.989	1.000	0.991

a/ $\hat{\beta}_p$ = estimated systematic risk, $\rho(\tilde{r}'_p, \tilde{r}'_m)$ = coefficient of correlation between $\tilde{r}'_p$ and $\tilde{r}'_m$, where $\tilde{r}'_p$ = return on lease portfolio p net of that on the risk-free asset and $\tilde{r}'_m$ = return on the market portfolio (Fisher Index) net of that on the risk-free asset.

b/ L1 = minimum noncapitalized lease effect portfolio, L4 = maximum noncapitalized lease effect portfolio.

c/ Results of a test on the homogeneity of regression (asset pricing) relationships indicate that the null hypothesis that the β_p estimates are stationary over the 4-year period cannot be rejected at even the 10% level.

TABLE 4

"Control Period" Risk Estimates and Degree of Diversification
For Composite Control Portfolios and Related Sub-Portfolios
(48 Monthly Observations: January 1968 - December 1971)

Lease Portfolio[b]	Control Portfolio/ Sub-portfolio[c]	Level of "Control Period" Systematic Risk[a]: Actual (Unequal) Risk $\hat{\beta}_p$	MSE($\times 10^{-2}$)	MAD($\times 10^{-2}$)	Equivalent Risk with $\beta^*_p = 1$: $\hat{\beta}_p$	$\rho(\tilde{r}'_p, \tilde{r}'_m)$	$\rho^2(\tilde{r}'_p, \tilde{r}'_m)$
	1	1.085	0.001	0.177	1.000	0.978	0.956
	2	1.083	0.003	0.379	1.000	0.978	0.956
	3	1.086	0.006	0.536	1.000	0.978	0.956
	4	1.084	0.013	0.811	1.000	0.983	0.966
L1	5	1.088	0.017	0.987	1.000	0.983	0.967
	6	1.079	0.029	1.263	1.000	0.983	0.967
	7	1.089	0.036	1.445	1.000	0.981	0.962
	8	1.081	0.056	1.790	1.000	0.973	0.947
	9	1.098	0.119	2.276	1.000	0.980	0.959
	10	1.065	0.251	3.092	1.000	0.968	0.938
	C1	1.084	0.053	1.128	1.000	0.997	0.994
	1	1.041	0.001	0.208	1.000	0.984	0.968
	2	1.039	0.003	0.392	1.000	0.979	0.958
	3	1.044	0.013	0.732	1.000	0.979	0.958
	4	1.038	0.018	0.901	1.000	0.968	0.936
L2	5	1.050	0.052	1.550	1.000	0.974	0.949
	6	1.026	0.140	2.211	1.000	0.971	0.943
	7	1.064	0.261	3.170	1.000	0.976	0.952
	8	1.018	0.265	3.232	1.000	0.970	0.942
	9	1.018	0.400	4.265	1.000	0.982	0.962
	10	1.070	0.443	4.399	1.000	0.986	0.972
	C2	1.041	0.159	2.106	1.000	0.997	0.994
	1	0.987	0.000	0.122	1.000	0.980	0.961
	2	0.986	0.001	0.261	1.000	0.978	0.957
	3	0.990	0.005	0.462	1.000	0.979	0.958
	4	0.984	0.006	0.581	1.000	0.979	0.959
L3	5	0.988	0.009	0.764	1.000	0.973	0.962
	6	0.984	0.016	1.029	1.000	0.977	0.954
	7	0.993	0.041	1.464	1.000	0.976	0.952
	8	0.979	0.062	1.845	1.000	0.975	0.950
	9	0.998	0.107	2.429	1.000	0.973	0.949
	10	0.968	0.200	3.231	1.000	0.981	0.962
	C3	0.986	0.045	1.219	1.000	0.997	0.994
	1	1.099	0.001	0.178	1.000	0.971	0.944
	2	1.099	0.010	0.457	1.000	0.980	0.959
	3	1.103	0.053	1.050	1.000	0.981	0.962
	4	1.097	0.092	1.467	1.000	0.981	0.962
L4	5	1.087	0.184	2.171	1.000	0.980	0.961
	6	1.113	0.256	2.270	1.000	0.981	0.962
	7	1.101	0.319	2.887	1.000	0.974	0.949
	8	1.074	0.515	3.353	1.000	0.977	0.955
	9	1.083	0.608	3.961	1.000	0.982	0.964
	10	1.035	2.784	7.174	1.000	0.965	0.931
	C4	1.089	0.482	2.515	1.000	0.996	0.992

a/ $\hat{\beta}_p$ = estimated systematic risk for control portfolio/sub-portfolio p; MSE = mean square error associated with the systematic risk estimates for securities in a lease portfolio and its control counterpart; MAD = mean absolute deviation between the systematic risk estimates for securities in a lease portfolio and its control counterpart; $\rho(\tilde{r}'_p, \tilde{r}'_m)$ = coefficient of correlation between $\tilde{r}'_p$ and $\tilde{r}'_m$, where $\tilde{r}'_p$ = return on control portfolio (sub-portfolio) p net of that on the risk-free asset, and $\tilde{r}'_m$ = return on the market portfolio (Fisher Index) net of that on the risk-free asset; $\rho^2(\tilde{r}'_p, \tilde{r}'_m)$ = coefficient of determination (r-square) between $\tilde{r}'_p$ and $\tilde{r}'_m$.

b/ L1 = minimum noncapitalized lease effect portfolio, L4 = maximum noncapitalized lease effect portfolio.

c/ The composite control portfolios - C1, C2, C3 and C4 - are determined as an arithmetic average of their respective 10 sub-portfolios, i.e., the sub-portfolios are equally weighted.

TABLE 5

Test Period Results for Equivalent Risk Lease Portfolios & Related Control Portfolios

	Parameter Estimate/ Statistic[a]	Alternative Estimation Periods/Lease & Control Portfolios[d]											
		Aggregate Test Period (1/72-12/75)				Pre-Disclosure Test Sub-Period (1/72-12/73)				Post-Disclosure Test Sub-Period (1/74-12/75)			
		1	2	3	4	1	2	3	4	1	2	3	4
PANEL A	$\hat{\beta}_L$	0.924	0.943	1.010	1.180	1.090	1.004	0.990	1.196	0.838	0.907	1.001	1.157
	$\hat{\beta}_C$	0.887	0.902	0.893	0.887	0.965	0.953	0.942	0.960	0.854	0.883	0.874	0.857
	$\hat{\beta}_L/\hat{\beta}_C$	1.042	1.045	1.132	1.331	1.129	1.053	1.051	1.246	0.982	1.027	1.145	1.351
	$\hat{\phi}_L$	1.039	1.034	1.124	1.290	1.125	1.038	1.050	1.228	0.975	1.020	1.141	1.304
	$\rho(\tilde{r}_L', \tilde{r}_m')$	0.966	0.982	0.961	0.973	0.980	0.985	0.949	0.974	0.970	0.982	0.971	0.976
	$\rho(\tilde{r}_C', \tilde{r}_m')$	0.988	0.993	0.992	0.989	0.995	0.994	0.994	0.995	0.987	0.994	0.993	0.987
	$\rho(\tilde{r}_L', \tilde{r}_C')$	0.974	0.978	0.962	0.955	0.981	0.977	0.953	0.964	0.977	0.981	0.974	0.954
PANEL B	F-test statistic for:[b]												
	(i) $\hat{\beta}_L = \hat{\beta}_C$	0.80	1.68	6.58*	41.5**	5.79*	1.33	0.43	14.24**	0.09	0.32	4.90*	22.76**
	(ii) $\hat{\phi}_L = 1$	1.18	1.08	6.87*	23.9**	6.90*	0.60	0.50	9.97**	0.30	0.23	6.24*	12.19**
	F-test statistic for:[c]												
	(iii) $\hat{\phi}_{L1}=\hat{\phi}_{L2}=\hat{\phi}_{L3}=\hat{\phi}_{L4}$	7.06**				2.05				5.85**			
	(iv) $\hat{\alpha}_{L1}=\hat{\alpha}_{L2}=\hat{\alpha}_{L3}=\hat{\alpha}_{L4}$	0.30				1.18				0.24			
	(v) $\hat{\phi}_{L1}=\hat{\phi}_{L2}=\hat{\phi}_{L3}=\hat{\phi}_{L4}$ & $\hat{\alpha}_{L1}=\hat{\alpha}_{L2}=\hat{\alpha}_{L3}=\hat{\alpha}_{L4}$	3.69**				1.64				3.06**			

a/ $\hat{\beta}_L = \rho(\tilde{r}_L', \tilde{r}_m')\sigma(\tilde{r}_L')/\sigma(\tilde{r}_m')$ = estimated systematic risk of lease portfolio L, where $\rho(\tilde{r}_L', \tilde{r}_m')$ is the coefficient of correlation between the net returns on L and the market portfolio m (Fisher Index), and $\sigma(\tilde{r}_L')$ and $\sigma(\tilde{r}_m')$ are the standard deviations for L and m respectively; $\hat{\beta}_C = \rho(\tilde{r}_C', \tilde{r}_m')\sigma(\tilde{r}_C')/\sigma(\tilde{r}_m')$ = estimated systematic risk of control portfolio C; $\hat{\phi}_L = \rho(\tilde{r}_L', \tilde{r}_C')\sigma(\tilde{r}_L')/\sigma(\tilde{r}_C')$ = estimated systematic risk of portfolio L relative to its control portfolio C, i.e. $\hat{\phi}_L$ is the estimated slope of an OLS regression of $\tilde{r}_L'$ on $\tilde{r}_C'$, and $\hat{\alpha}_L$ is the estimated intercept.

b/ The degrees of freedom in the numerator and denominator of the computed F-statistics are 1 and 92 (44) respectively for the aggregate test period (pre- and post-disclosure sub-period) results.

c/ The degrees of freedom in the numerator of the computed F-statistics are 3 for test (iii) and (iv), and 6 for test (v), while those in the denominator are 184 and 88 for the aggregate and pre-disclosure/post-disclosure sub-periods respectively.

d/ Nominal significance levels are indicated as follows: + 10% level, * 5% level, and ** 1% level.

TABLE 6

Comparison of the Systematic Risk Levels of the Lease Portfolios & Their Related Control Sub-Portfolios

Lease Portfolio	Estimation Period	Ratio of Systematic Risk Estimates for Lease Portfolio and its Control Sub-Portfolio[a/]										
		1	2	3	4	5	6	7	8	9	10	C
L1	72-75	1.040 (0.46)	1.051 (0.77)	1.067 (1.52)	0.976 (0.22)	1.073 (1.48)	1.017 (0.10)	1.103 (3.27)+	1.100 (3.10)+	0.986 (0.08)	1.026 (0.22)	1.042 (0.80)
	72-73	1.159 (4.00)+	1.061 (0.69)	1.143 (3.69)+	1.151 (4.62)*	1.154 (3.26)+	1.149 (5.31)*	1.128 (4.06)+	1.212 (6.92)*	1.060 (0.85)	1.095 (2.79)	1.129 (5.79)*
	74-75	0.962 (0.24)	1.028 (0.14)	1.000 (0.00)	0.890 (2.88)+	1.017 (0.05)	0.940 (0.63)	1.072 (0.86)	1.031 (0.19)	0.930 (1.00)	0.974 (0.10)	0.982 (0.09)
L2	72-75	1.098 (4.49)*	1.077 (2.39)	0.921 (3.70)+	0.988 (0.10)	1.113 (5.73)*	1.087 (3.45)+	1.026 (0.47)	1.071 (1.65)	1.025 (0.30)	1.075 (3.38)+	1.045 (1.68)
	72-73	1.105 (2.87)+	1.113 (2.02)	0.876 (5.25)*	1.054 (0.83)	1.121 (3.39)+	1.033 (0.24)	1.076 (1.53)	1.078 (1.22)	1.057 (0.75)	1.062 (1.17)	1.053 (1.33)
	74-75	1.082 (1.52)	1.052 (0.62)	0.934 (1.36)	0.940 (1.57)	1.093 (1.97)	1.102 (2.73)	0.990 (0.04)	1.047 (0.33)	0.993 (0.11)	1.074 (1.73)	1.027 (0.32)
L3	72-75	1.112 (3.13)+	1.051 (0.92)	1.271 (14.5)**	1.129 (5.53)*	1.081 (1.93)	1.050 (0.79)	1.262 (15.07)**	1.198 (9.54)**	1.175 (7.27)**	1.044 (0.57)	1.132 (6.58)*
	72-73	1.022 (0.05)	0.986 (0.03)	1.085 (0.79)	1.092 (0.97)	1.014 (0.03)	1.068 (0.42)	1.129 (1.75)	1.089 (0.87)	1.013 (0.03)	1.076 (0.64)	1.051 (0.43)
	74-75	1.148 (3.22)+	1.069 (0.95)	1.322 (11.90)**	1.117 (3.19)+	1.092 (1.33)	1.027 (0.17)	1.309 (11.50)**	1.224 (6.99)*	1.164 (6.83)*	1.002 (0.00)	1.145 (4.90)*
L4	72-75	1.318 (22.49)**	1.303 (30.38)**	1.505 (52.03)**	1.526 (64.77)**	1.301 (27.03)**	1.232 (16.87)**	1.254 (17.97)**	1.461 (55.70)**	1.268 (24.79)**	1.221 (14.31)**	1.331 (41.48)**
	72-73	1.273 (8.54)**	1.239 (10.59)**	1.386 (18.18)**	1.386 (21.10)**	1.161 (5.48)*	1.117 (2.18)	1.170 (3.87)+	1.413 (23.16)**	1.164 (5.47)*	1.175 (5.01)*	1.246 (14.24)**
	74-75	1.346 (13.31)**	1.319 (16.35)**	1.532 (27.88)**	1.562 (37.06)**	1.351 (17.12)**	1.280 (13.16)**	1.267 (10.89)**	1.454 (27.72)**	1.321 (18.19)**	1.231 (7.42)**	1.351 (22.76)**

a/ The primary amounts reported are $\hat{\beta}_L/\hat{\beta}_{C,i}$, where $\hat{\beta}_L$ is the systematic risk estimate for lease portfolio L and $\hat{\beta}_{C,i}$ is the systematic risk estimate for its related control sub-portfolio i (i = 1,...10). The computed F-statistics associated with the test of the null hypothesis that $\hat{\beta}_L = \hat{\beta}_{C,i}$ are shown in parentheses; the degrees of freedom in the numerator and denominator of these computed F-values are 1 and 92 (44) respectively for the aggregate test period (pre- and post-disclosure sub-period) results. Nominal significance levels are indicated as follows: + 10% level, * 5% level, and ** 1% level.

b/ 72-75 = aggregate test period; 72-73 = pre-disclosure test sub-period; and 74-75 = post-disclosure test sub-period.

TABLE 7

Hypothesis Testing in a Multivariate Framework:
Results of Scheffé's Interval Test

	Test Period & Null Hypothesis (H_o)[a]	F-Statistic [F(N,D)][b]
PANEL A	AGGREGATE PERIOD (1/72-12/75) TESTS	F(4,374)
	Joint Test of H_o:	
	$\phi^*_{L1}(A) = \phi^*_{L2}(A) = \phi^*_{L3}(A) = \phi^*_{L4}(A) = 0$	13.28**
	Component of Joint H_o:	
	$\phi^*_{L1}(A) = 0$	0.32
	$\phi^*_{L2}(A) = 0$	0.25
	$\phi^*_{L3}(A) = 0$	2.36*
	$\phi^*_{L4}(A) = 0$	12.39**
PANEL B	SUB-PERIOD (1/72-12/73 & 1/74-12/75) TESTS: LEASE PORTFOLIOS IN PRE-DISCLOSURE PERIOD NOT POOLED	F(8,366)
	Joint Test of H_o:	
	$\phi^*_{L1}(B) = \phi^*_{L2}(B) = \phi^*_{L3}(B) = \phi^*_{L4}(B)$ $= \phi^*_{L1}(C) = \phi^*_{L2}(C) = \phi^*_{L3}(C) = \phi^*_{L4}(C) = 0$	6.84**
	Component of Joint H_o:	
	$\phi^*_{L1}(B) = 0$	0.51
	$\phi^*_{L2}(B) = 0$	0.05
	$\phi^*_{L3}(B) = 0$	0.08
	$\phi^*_{L4}(B) = 0$	1.61
	$\phi^*_{L1}(C) = 0$	0.02
	$\phi^*_{L2}(C) = 0$	0.19
	$\phi^*_{L3}(C) = 0$	1.16
	$\phi^*_{L4}(C) = 0$	4.70**
PANEL C	SUB-PERIOD (1/72-12/73 & 1/74-12/75) TESTS: LEASE PORTFOLIOS IN PRE-DISCLOSURE PERIOD POOLED[c]	F(5,375)
	Joint Test of H_o:	
	$\phi^*_{LP}(B) = \phi^*_{L1}(C) = \phi^*_{L2}(C) = \phi^*_{L3}(C) = \phi^*_{L4}(C) = 0$	9.86**
	Component of Joint H_o:	
	$\phi^*_{LP}(B) = 0$	2.01+
	$\phi^*_{L1}(C) = 0$	0.02
	$\phi^*_{L2}(C) = 0$	0.06
	$\phi^*_{L3}(C) = 0$	2.07+
	$\phi^*_{L4}(C) = 0$	7.68**
	Linear Combination of Components of Joint H_o:	
	$\phi^*_{L1}(C) - \phi^*_{LP}(B) = 0$	1.09
	$\phi^*_{L2}(C) - \phi^*_{LP}(B) = 0$	0.53
	$\phi^*_{L3}(C) - \phi^*_{LP}(B) = 0$	0.11
	$\phi^*_{L4}(C) - \phi^*_{LP}(B) = 0$	2.48*

a/ $\phi^*_{Li}(j)$ = estimated difference between the risk of lease portfolio Li in period j (relative to its composite control portfolio) and that of the lease portfolios pooled in the control period (1/68-12/71); i = 1 (minimum noncapitalized lease effect), 2,3,4 (maximum noncapitalized lease effect) and j = A (aggregate period: 1/72-12/75), B (pre-disclosure sub-period: 1/72-12/73) and C (post-disclosure sub-period: 1/74-12/75).

b/ N and D are the number of degrees of freedom in numerator and denominator respectively. Nominal significance levels are indicated as follows: + 10% level, * 5% level, and ** 1% level.

c/ $\phi^*_{LP}(B)$ = estimated difference between the risk of the 4 lease portfolios pooled in the pre-disclosure period (1/72-12/73) and that in the control period (1/68-12/71).

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