THE EQUITY REIT UNIVERSE 1985-1992:
THE ROLE OF PROPERTY TYPE AND SIZE

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Abstract

In this paper we report initial results from our National Equity REIT Database project. We provide descriptive statistics on expense ratios, leverage, total assets, and diversification of properties. We then categorize the sample by property type and size and use two-way analysis of variance to highlight significant differences among the categories. REITs are similar to closed end funds and trade at discounts or premiums from the net asset value of the underlying properties. Retail REITs trade at significant premiums relative to the average REIT while warehouse/industrial REITs trade at discounts. Small REITs trade at significant discounts while large REITs trade at premiums. The discounts and premiums from net asset value, however, do not translate into higher cash flow yields.

The most dramatic change in the real estate industry in the last few years is the rapid increase in the securitization of equity in real estate through Real Estate Investment Trusts (REITs). Many factors have contributed to the explosive growth of REIT initial and secondary public offerings. Often cited factors include changes in the capital requirements for commercial lenders that have made mortgage loans more costly and changes in tax laws that reduced the tax favored status of other ownership forms like real estate limited partnerships. The evolution of the REIT industry is now proceeding so rapidly that research and analysis will inevitably lag behind.

In this paper we report initial results from our National Equity REIT Database project. The project will attempt to chronicle and analyze the evolution of the industry and will address some fundamental issues in financial economics. REITs are an unusual laboratory for financial analysis for two reasons. First, the value of the underlying real estate assets can be estimated with much greater precision than other corporate assets since real estate assets also trade individually as properties. As a result we need not resort to imperfect measures of asset value like book value. Second, REITs are not taxed at the corporate level. Issues like optimal capital structure can be studied independent of the confounding effects of taxes.

Our goal in this paper is to provide descriptive statistics on the industry in four ways. First we will outline the size, property types, income, expenses, and diversification of the equity REIT universe from 1985-92. The universe consists of 75 REITS but not for every year. The sample grows from 33 to 72 REITs during this period. Second, we provide similar data for the 32 continuing REITs for which data is available in all eight years. This allows us to separate the effect of entry to and exit from the industry on the aggregate statistics.

The next two sections segment the data by property type and size class. Each REIT is classified as an apartment, warehouse, retail, or office, REIT if more than 50% of the properties owned are of one type. The size segmentation uses quartiles derived from total assets. In each segmentation we investigate differences in expenses, cash flow yield, diversification, and capital structure.

To preview the conclusions, we find that expenses as measured by the ratio of general and administrative (G&A) expenses to total assets, remained constant during the period. Diversified REITs and small REITS have above average expense ratios. Leverage as measured by total liabilities / (total liabilities + market value of the equity) rose during the period. Large REITs and apartment REITs were more highly levered than average. By property type, apartment REITs are the most concentrated by location. Small REITs are more focused by property type.

The stock market valuations of REITs as measured by premiums above the values of the underlying properties declined during the period. Wall Street (i.e., the stock markets) placed higher values on retail REITs and lower values on warehouse REITs relative to Main Street (the local property markets). In the size quartiles, small REITs trade at much larger discounts than large REITs. The differences are statistically significant.

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While discounts from net asset value are significantly below average for small REITs, cash flow yields are not significantly higher than those of larger firms. That is, discounts from net asset value are not being translated into higher earnings yields.

The Data

Criteria for Inclusion in the Sample

The 1992 NAREIT (National Association of Real Estate Investment Trusts) sourcebook lists all publicly traded REITs (209 REITs) as of December 31, 1991. To focus on property, we exclude all mortgage, hotel, restaurant, and hospital REITs. REITs that do not trade on NYSE, AMEX, and NASDAQ or for which property information is not available are also discarded from our database. With these exclusions the sample consists of 75 REITs. The included REITs are listed in Table 1.0.

Sample Size

The 75 included equity REITs appear in the sample for at least one year. 416 total observations are available to study. 32 of the REITs appear in all eight years.

We classify each REIT by property type when more than 50% of the property held is of one type (apartment, warehouse, retail, office). If no one property type is more than 50%, the REIT is classified as "Diversified." The number of REITs of each property type appears in Table 1.2. Retail REITs are the most common with 13-20 in each year. Apartment REITs are the least common with only 3-6 in each year. The jump in warehouse REITs in 1991 occurs because 18 Public Storage Equities partnerships converted to REIT status.

Sources of the Data

The data is compiled from 10-K filings of the REITs as well as CRSP data tapes. Most REIT specific information is obtained from 10-K reports, annual reports to shareholders, and proxy statements. Stock price data are retrieved from the CRSP daily return file. Metro and regional level property information is obtained from the NREI (National Real Estate Index) and Russell/NCREIF indices.

Variables in the Database

The database includes balance sheet, income statement, and property variables from the 10-K reports. The property data are classified by region using the eight economic regions as defined in Hartzell, Shulman, and Wurtzebach (1987). Table 1.1

provides descriptive statistics on the variables. Calculated variables are explained below.

Net Asset Value

To value the proerty holdings we assign property specific capitalization rates to each property and then calculate a weighted average capitalization rate based on each individual property's percentage of the total portfolio value. This weighted average capitalization rate is applied to the portfolio's current net operating income to derive a value for the entire portfolio. Each REIT's net asset value (NAV) is computed as follows: NAV = (market value of properties + other assets - total liabilities) / the number of shares outstanding.

Value Weighted Premium

The premium of each REIT is measured by (stock price - net asset value) / net asset value. Value weighted premium(VWPREM) is defined as follows :

$$VWPREM = \sum_{i=1}^{n_t} w_i \bullet prem_{it} \qquad (1)$$

where

$$w_i = NAV_{it} / \sum_{i=1}^{n_t} NAV_{it},$$

$PREM_{it} = (SP_{it} - NAV_{it}) / NAV_{it},$
NAV_{it} = net asset value of REIT i at end of period t,
SP_{it} = stock price of REIT i at end of period t, and
n_t = the number of REITs with available $PREM_{it}$ and NAV_{it} data at the end of period t.

Concentration Indices

To measure diversification/concentration, we use Hirschman-Herfindahl indices that are commonly used in industrial economics to measure monopoly power. [1] We define three variables as follows:

$$HHBOTH = \sum_i \sum_j S_i^2 \qquad (4)$$

$$HHPROP = \sum_i S_i^2, and$$

$$HHRGN = \sum_j S_j^2$$

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[1] The index first acquired the name of Orris Herfindahl from work on energy in the 1950s and that of Albert Hirschman from earlier work on foreign trade patterns. See Hirschman (1964).

where

    S_{ij} = the proportion of a REIT's portfolio
        invested in property-type i and region
        j,

    S_i = the proportion of a REIT's portfolio
        invested in property-type i, and

    S_j = the proportion of a REIT's portfolio
        invested in region j.

The above three indices measure how concentrated the properties in a REIT are, i.e., if the REIT is highly focused, the index is close to one, and if diversified, the index is close to zero.

Cash Flow Yield
We define cash flow as (net income + depreciation and amortization - gain on property sales + extraordinary expenses). The cash flow yield is measured by $CF_{it}/SP_{i,t-1}$,

where

CF_{it} = cash flow of REIT i at end of period t, and
$Sp_{i,t-1}$ = stock price of REIT i at end of period t-1.

The REIT Universe
The Value of Property in REITs
Table 1.2 describes the total property assets held by equity REITs. Book value of property assets tripled from 1985 to 1992. The square footage of retail space held by REITs doubled while the square footage of warehouse space quadrupled. The large increase in warehouse space is partly due to the conversion to REIT status of the 18 Public Storage Limited Partnerships in 1991.

Figures 1.1 to 1.5 compare the proportions of property in REITs by type in 1985 and 1992 compared with the proportions in the NCREIF data and the total stock of property in the U.S. REITs are much more concentrated in retail property than either the NCREIF sample or the U.S. stock. Over half the property in REITs is retail in 1992 while only about 25% is retail in the NCREIF sample and the RREEF national estimate. Warehouse/industrial is underweighted in the REIT sample. The reasons for these under/overweightings are an interesting open question on which we provide some evidence below.

Average REIT Size
Table 1.5 outlines the average REIT size by property

type and size quartile. The average REIT had $127 million of total assets during the period. By property type retail, apartment, and diversified REITs are above average in size while office and warehouse REITs are below average. The average small REIT (first quartile) has $29 million in assets. The large REITs (fourth quartile) average $279 million.

Property Characteristics
Total property assets average $95 million per REIT over the period (see table 1.6). The book value of the properties climbs from 71% of the property market value to 91% of market value. The average occupancy rate of the properties, reflecting general market trends, falls from 92% in 1985 to 87% in 1991 before recovering to 89% in 1992. The average cap rate rises from 8.8% to 9.4% also reflecting market trends.

Figure 1.6 shows the distribution of property by economic region in 1992. Each economic region has a 14-18% share of total property except the Northeast and Farm regions that have less than 3% each.

Income and Expenses
REIT rental income tripled during the period to $1.3 billion (table 1.2). Total net income, on the other hand, declined through 90-91 before recovering in 1992. Average net income per REIT fell by nearly a half during the period. G&A expenses averaged 1.1% of total assets.

Leverage
As measured by (total liabilities)/(total liabilities + market value of the equity), leverage increased from 25% to 35% with a peak in 1990 at 48% when REIT stocks were highly depressed.

Concentration/Diversification
The Hirschman-Hirfindahl indices show conflicting trends in concentration. While concentration by property type increased (61 to 70), concentration by region declined (60 to 46). Overall (HH Both) concentration declined slightly (41 to 35).

Wall Street vs. Main Street
Valuations of REIT stocks fluctuate widely from the value of the underlying properties during the sample period. On average REITs have traded at a discount of 8% from the net asset values of the properties; however the value weighted premium by year varies from a high of 13% in 1986 to a low of -36% in 1990. Wall Street's willingness to pay for securitized property fell by nearly 50% in just four years before

recovering in 1991-92.

Survivor REITs

The 32 REITs for which data is available in all years allow us to separate the effects of entry and exit from general market trends. Table 2 provides comparable data to table 1.6 for the survivor sample. The survivor REITs are about 20% larger than the full sample. Occupancy rates, expense ratios and cap rates are similar to the full sample. Net income, however, does not show the steep decline of the full sample suggesting that REITs that entered during the period were weaker than the survivors. Survivor REITs are also more highly leveraged and a little less focused by property type.

In the next two sections we test whether there are significant differences among the REIT property type and size categories. In particular we test whether the premiums to net asset value differ significantly among types and if any differences in premiums to net asset value spill over into cash flow yields. If the premium differences are justified by the cost differences, cash flow yields should not differ significantly.

REITs by Property Type

Table 3 provides cross tabs on some key variables by REIT property type. In each panel we provide F-tests for significant variation in the relevant variable by year and by property type. In addition we test whether any of the category averages are significantly different from the overall sample mean and indicate those that are by asterisks.

Premium to Net Asset Value

In Panel A the premiums and discounts from net asset value are listed. Warehouse REITs are discounted the most heavily while retail REITs are least discounted. The differences from the sample averages are significant for these two categories.

Leverage

In panel B we see that apartment REITs are significantly more highly levered than average while diversified and office REITS are below average during the sample period. The F statistics for both the yearly effect and the property-type effect are significant.

Concentration

Panels C and D provide the concentration ratios. As might be expected diversified REITs show low concentration levels by property type. Office, warehouse and retail REITs are significantly more

concentrated by property type than the average REIT. The yearly differences are not significant.

By region the pattern is quite different. Warehouse and diversified REITs have low focus by region while apartment REITs are highly focused. Again the yearly differences are not significant.

Expenses

In panel E we find that expense levels are high for diversified REITS and low for retail and apartment REITS. The yearly differences are not significant.

Cash Flow Yield

While some REIT types are more heavily discounted from the value of the underlying property, we might expect that in efficient markets these discounts would reflect lower earnings potential. Cash flow yields, however, might also reflect higher risk levels. We know from the previous panels that apartment REITs are more highly leveraged and that diversified REITs have higher expenses. Apartment REITs are also less diversified and carry more local market risk in addition to the higher financial risk. Therefore we might expect to see higher cash flow yields on apartment REITs.

Panel F displays the cash flow yields by type. The differences among types are not significant. Therefore there is no evidence that NAV premiums or risk levels are affecting the cash flow yields. However, the yearly variation is significant.

Size Quartiles

It is well known that many equity market anomalies are related to size. For example Banz (1981) showed that returns from buying very small firms are 20% higher than for very large firms. Roll (1981) and Reinganum (1981) present evidence that the small firm effect is partly due to errors in estimating the risk (beta) of small firms; but the effect remains even when the estimation problems are corrected. Stoll and Whaley (1983) argue that, given the differences in transactions costs between small and large firms, a round-trip transactions cost every three months is enough to eliminate the small firm effect. Keim (1983) provides evidence that 25% of the size effect occurs during the first five trading days in January. In this section we investigate whether size is related to other REIT characteristics.

Premium to Net Asset Value

Panel A of table 4 illustrates the dramatic effect of

size on the premium to net asset value of the properties. There is a monotonic increase in the premium as we move to the larger size quartiles. Small REITs (first quartile, average $29 million) are discounted 33% more than large REITs (fourth quartile, average $279 million). Both the size effect and the yearly effect are highly significant.

Leverage
In panel B we see that large REITs (fourth quartile) are more highly leveraged than the small REITs (first quartile). The yearly effect is also significant.

Concentration
Panel C: Small REITs (quartile 1) are significantly more highly concentrated by property type. The next two quartiles are less concentrated than the sample. There are no significant differences either by size or year in the regional concentration indices (panel D).

Expenses
Panel E: Small REITs are almost twice as costly to administer as large REITs. The G&A ratio for small REITs is 1.7% while for large REITs it falls to .9%. This accounts for some of the large discount from net asset value for small REITs. The yearly differences are not significant.

Cash Flow Yield
Panel F: Since small REITs have lower financial risk (less leverage) and less local market risk (more diversified by region) we might expect lower cash flow yields. However, we find instead that cash flow yields for small REITs are higher than for other REITs but not significantly so. The yearly differences, on the other hand, are significant.

Summary and Conclusions
In this paper we have described some preliminary results from the National Equity REIT Database project at the University of Michigan. This project will chronicle the evolution of the industry and analyze some basic issues in financial economics using REIT data. Here we have provided descriptive statistics on REIT property holdings as well as additional categorization by REIT property type and size.

We find that expenses as measured by the ratio of G&A to total assets, remained constant during the period. As might be expected, diversified REITs and small REITS have above average expense ratios.

Leverage rose during the period. Large REITS and apartment REITs were more highly levered than average. By property type apartment REITs are the most concentrated by location. Small REITs are more focused by property type.

The stock market valuations as measured by premiums above the values of the underlying properties declined during the period. Discounts from net asset value are higher for warehouse REITs and small REITs. Retail REITs sell at premiums relative to the average REIT. Cash flow yields, on the other hand, are not significantly different among REITs. Therefore we are unable to find evidence that differences in premiums to net asset value or in risk levels affect cash flow yields.

These results may help to explain why retail property is over represented and warehouse/industrial is underrepresented in REITs. Retail property, once securitized sells at a premium while the opposite is the case for warehouse/industrial. The discounts/premiums do not affect cash flow yields. For unknown reasons, securitization adds value to retail property but destroys value for warehouse/industrial property.

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and the small firm effect," *J. of Financial Economics*, 12, 1
(1983).

Table 1.0
The 75 Included REITs
Starred REITS are in the survivor sample of 32 REITs

*B R E PROPERTIES INC
BERKSHIRE REALTY CO INC
*BRADLEY REAL ESTATE TRUST
BURNHAM PACIFIC PROPERTIES INC
*CALIFORNIA REAL ESTATE INVT TR
CEDAR INCOME FUND LTD
CEDAR INCOME FUND 2 LTD
CHICAGO DOCK AND CANAL TRUST
*CLEVETRUST REALTY INVESTORS
*CONTINENTAL MORTGAGE & EQTY TR
COPLEY PROPERTY INC
COUSINS PROPERTIES INC
DIAL REIT INC
DUKE REALTY INVESTMENTS INC
*E Q K REALTY INVESTORS 1
*EASTGROUP PROPERTIES
*FEDERAL REALTY INVESTMENT TRUST
*FIRST UNION REAL EST EQ&MG INVTS
GRUBB & ELLIS REALTY INC TRUST
*H R E PROPERTIES
*I C M PROPERTY INVESTORS INC
*I R T PROPERTY CO
INCOME OPPORTUNITY REALTY TRUST
KOGER EQUITY INC
LANDSING PACIFIC FUND
LINPRO SPECIFIED PPTYS
*M G I PROPERTIES INC
*M S A REALTY CORP
*MERIDIAN POINT REALTY TR 83
*MERIDIAN POINT REALTY TR 84
MERIDIAN POINT REALTY TRUST IV
MERIDIAN POINT REALTY TRUST VI
MERIDIAN POINT REALTY TRUST VII
MERIDIAN POINT REALTY TRUST VIII
*MERRY LAND & INVESTMENT INC
MONMOUTH REAL ESTATE INVT CORP
*NEW PLAN RLTY TRUST

*NOONEY REALTY TRUST INC
*ONE LIBERTY PROPERTIES INC
P S BUSINESS PARKS INC
PARTNERS PREFERRED YIELD INC
PARTNERS PREFERRED YIELD II
PARTNERS PREFERRED YIELD III
*PENNSYLVANIA REAL EST INVT TR
*PROPERTY TRUST AMER
*PRUDENTIAL REALTY TRUST
PUBLIC STORAGE PROPERTIES VI
PUBLIC STORAGE PROPERTIES VII
PUBLIC STORAGE PROPERTIES VIII
PUBLIC STORAGE PROPERTIES IX INC
PUBLIC STORAGE PROPERTIES X INC
PUBLIC STORAGE PROPERTIES XI INC
PUBLIC STORAGE PROPERTIES XII
PUBLIC STORAGE PROPERTIES XIV
PUBLIC STORAGE PROPERTIES XV INC
PUBLIC STORAGE PROPERTIES XVI
PUBLIC STORAGE PROPERTIES XVII
PUBLIC STORAGE PROPERTIES XVIII
PUBLIC STORAGE PROPERTIES XIX
PUBLIC STORAGE PROPERTIES XX
*REAL ESTATE INVESTMENT TRUST CA
REALTY SOUTH INVESTORS INC.
*SANTA ANITA RLTY ENTERPRISES
SIZELER PROPERTY INVESTORS INC
*TRAMMELL CROW REAL ESTATE INVS
*TRANSCONTINENTAL RLTY INVSTRS
*U S P REAL ESTATE INVESTMT TRUST
*UNITED DOMINION REALTY TR INC
VANGUARD REAL ESTATE FUND I
VANGUARD REAL ESTATE FUND II
VINLAND PROPERTY TRUST
*WASHINGTON REAL EST INVT TR
*WEINGARTEN REALTY INVESTORS
*WESTERN INVESTMENT REAL EST TR
WETTERAU PROPERTIES INC

TABLE 1.1 The REIT Universe 1985 - 1992 : Summary Statistics
Total assets and property assets are book values.
Total market assets are measured by (estimated market value of properties + other assets).
The leverage ratio is defined as total liabilities / (total liabilities + market value of the equity).

VARIABLE	MEAN	MAX	MIN	STD. DEV.
TOTAL ASSETS ($ MIL.)	126.8	603.8	2.1	110.2
PROP. ASSETS ($ MIL.)	94.7	485.7	2.1	85.3
PROP. AST. / MKT. VALUE OF PROP. (%)	85.2	201.0	14.0	33.0
TOT. AST. / TOT. MKT. AST. (%)	87.0	166.0	20.0	26.0
AVG. OCC. RATE (%)	89.5	100.0	57.0	7.0
WEIGHTED CAP. RATE (%)	8.9	10.6	7.4	0.5
NET INCOME ($ THOU)	3,963	49,446	(58,609)	9,209
G&A ($ THOU)	1,390	15,418	0	1,478
CASH FLOW PER SHARE	1.03	4.76	0	0.64
G&A / TOTAL ASSETS (%)	1.1	7.5	0.0	1.1
CASH FLOW YIELD (%)	8.0	78.0	0.0	10.0
LEVERAGE RATIO (%)	35.0	96.0	0.0	26.0
HH INDEX BOTH (%)	39.6	100.0	7.5	21.4
HH INDEX PROP. (%)	65.3	100.0	21.0	23.5
HH INDEX RGN. (%)	55.6	100.0	14.6	27.2
VALUE WT. PREMIUM (DISCOUNT) (%)	(8.3)	137.2	(93.6)	38.5

TABLE 1.2 The REIT Universe 1985 - 1992 : Selected Characteristics by Year
These statistics are based upon 75 REITs and 416 observations. Total assets and property assets are book values.

YEAR	TOTAL REITS	OFF. REITS	WARE. REITS	RETAIL REITS	APT REITS	DIVERSIFIED REITS	NET INCOME ($ MIL.)	RENTS TOTAL ($ MIL.)	TOTAL ASSETS ($ MIL.)	PROPERTY ASSETS ($ MIL.)
1985 TOTAL	33	7	4	13	4	5	216	394	3,945	2,430
1986 TOTAL	36	8	2	14	4	8	237	488	4,483	3,069
1987 TOTAL	45	10	6	17	3	9	236	606	5,385	3,781
1988 TOTAL	52	14	7	20	4	7	189	732	6,474	4,628
1989 TOTAL	52	14	6	19	3	10	226	850	7,112	5,206
1990 TOTAL	53	15	8	20	4	6	147	910	7,284	5,685
1991 TOTAL	73	18	23	19	6	7	149	1,167	8,744	6,839
1992 TOTAL	72	16	25	15	6	10	248	1,265	9,300	7,759

YEAR	SF OFF. (THOU.)	SF WARE. (THOU.)	SF RETAIL (THOU.)	SF APT (THOU.)	OFF. VALUE ($ MIL.)	WARE. VALUE ($ MIL.)	RETAIL VALUE ($ MIL.)	APT VALUE ($ MIL.)
1985 TOTAL	9,714	12,216	35,805	16,216	1,614	375	3,450	757
1986 TOTAL	11,015	17,337	44,219	16,306	1,796	552	4,294	778
1987 TOTAL	13,780	25,004	50,967	16,429	2,412	832	5,153	810
1988 TOTAL	17,650	27,389	57,911	18,740	3,044	971	6,113	939
1989 TOTAL	19,192	27,970	62,832	19,973	3,046	976	6,630	1,011
1990 TOTAL	20,812	31,963	67,240	23,366	2,999	1,106	7,264	1,193
1991 TOTAL	22,296	53,480	69,067	32,357	3,142	1,850	7,006	1,559
1992 TOTAL	23,401	51,921	75,142	45,751	2,916	1,668	7,104	1,936

TABLE 1.3 Total Market Values by Property Types in the Russell - NCREIF Data Base
The Russell - NCREIF data base reflects the real estate ownership of tax-exempt institutional investors.
Warehouse and R&D office value is combined.

YEAR	OFF. VALUE ($ MIL.)	WARE. / R&D OFF. VALUE ($ MIL.)	RETAIL VALUE ($ MIL.)	APT VALUE ($ MIL.)
1985 TOTAL	5,188	2,328	1,775	
1986 TOTAL	6,454	3,147	2,225	
1987 TOTAL	5,921	3,677	2,472	
1988 TOTAL	6,460	4,402	3,217	773
1989 TOTAL	7,098	5,109	3,833	1,202
1990 TOTAL	8,580	5,946	5,071	1,798
1991 TOTAL	8,066	6,645	5,956	2,408
1992 TOTAL	7,828	6,549	6,233	2,836

FIGURE 1.1 Distribution of Property Type among the 1985 REITs

WAREHOUSE
(12.2%)

(26.1%)
OFFICE

(6.1%)
APT

(55.7%)
RETAIL
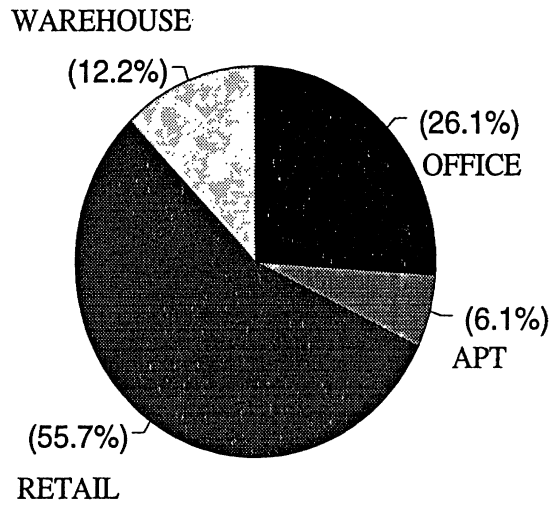
Figure 1.2 Distribution of Property Type among the 1985 Russell-NCREIF Data Base

RETAIL
(19.1%)

OFFICE
(55.8%)

WAREHOUSE
(25.1%)
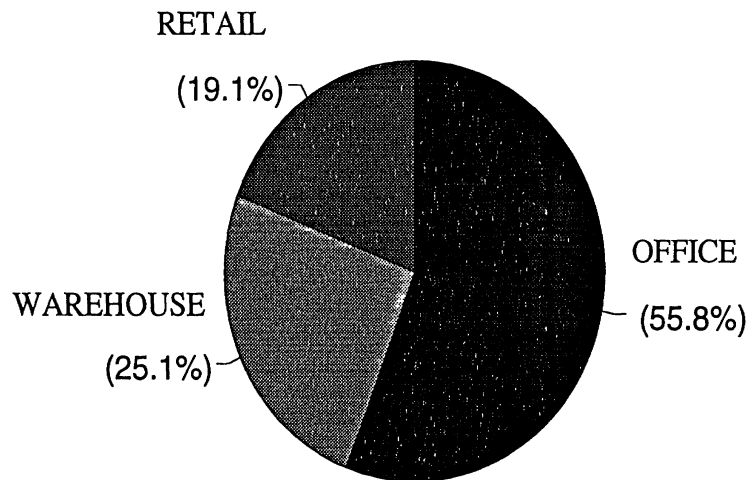
FIGURE 1.3 Distribution of Property Type among the 1992 REITs

APT
(14.2%)
OFFICE (21.4%)
WAREHOUSE (12.2%)
RETAIL (52.1%)
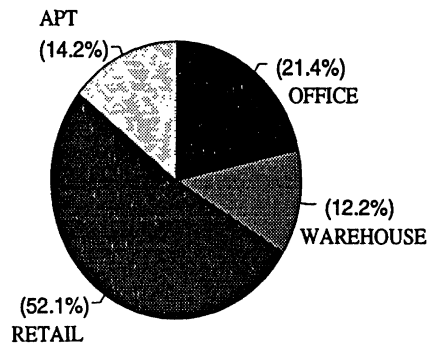
Figure 1.4 Distribution of Property Type among the 1992 Russell-NCREIF Data Base

APT
(12.1%)
OFFICE (33.4%)
RETAIL (26.6%)
WAREHOUSE (27.9%)
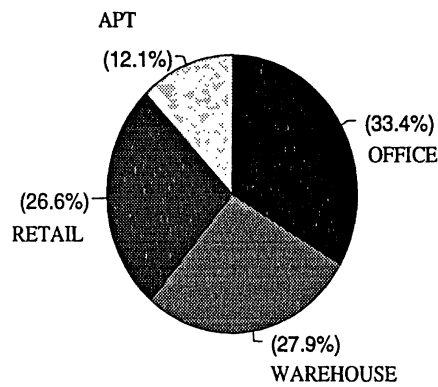
FIGURE 1.5 National Distribution of Institutional-Grade Property in 1992
These values are based on estimates by RREEF research.

APT
(15.0%)
OFFICE (33.0%)
RETAIL (24.0%)
WAREHOUSE (28.0%)
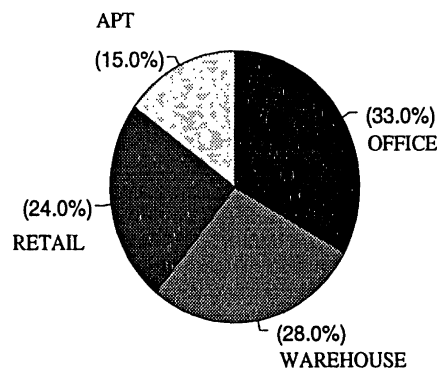
TABLE 1.4 Location of the Properties by Eight Economic Regions

The property data are classified by region using the eight economic regions as defined in Hartzell, Shulman, and Wurtzebach (1987). The eight economic regions are Northeast (NE), Mid-atlantic (MA), Southeast (SE), Southwest (SW), Midwest (MW), Farm (FARM), Southern california (SCAL), and Northern california (NCAL) region.

YEAR	NE (%)	MA (%)	SE (%)	MW (%)	FARM (%)	SW (%)	SCAL (%)	NCAL (%)
1985 AVG	2.0	19.1	18.2	17.2	1.6	16.0	15.5	10.4
1986 AVG	2.2	18.0	20.9	16.8	2.1	15.4	15.6	9.0
1987 AVG	2.1	17.3	19.4	22.1	1.7	13.3	16.4	7.7
1988 AVG	2.0	15.3	20.6	22.4	1.9	14.9	14.7	8.2
1989 AVG	2.0	14.8	20.6	19.7	1.5	14.2	17.4	9.9
1990 AVG	2.8	13.6	20.2	19.3	1.9	14.5	17.5	10.2
1991 AVG	2.6	13.6	17.8	17.9	1.6	14.3	17.5	14.6
1992 AVG	2.5	13.7	16.7	18.1	1.6	15.7	16.6	15.1
1985 - 1992 WT. AVG	**2.3**	**15.2**	**19.1**	**19.2**	**1.7**	**14.8**	**16.6**	**11.2**

FIGURE 1.6 Location of Properties in 1992
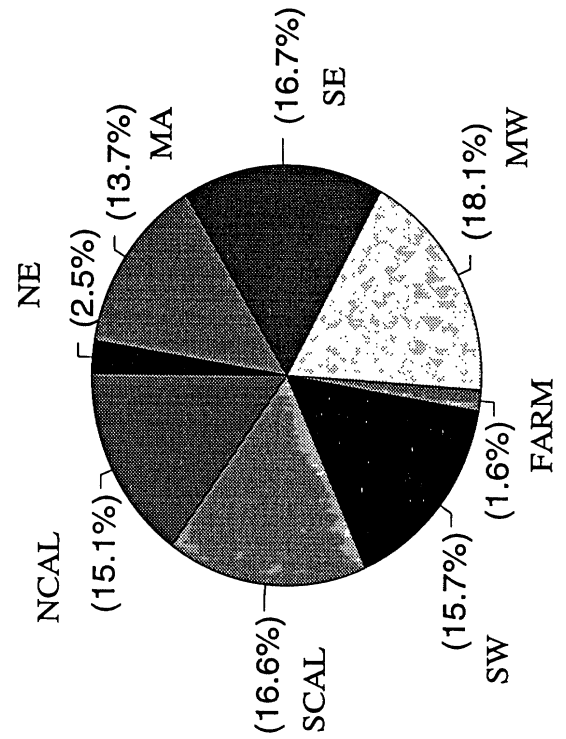
TABLE 1.5 The REIT Universe 1985 - 1992 : Selected Characteristics by Year
These statistics are based upon 75 REITs and 416 observations. Total assets are book values.

YEAR	OFF. REITS TOT. AST. ($ MIL.)	WARE. REITS TOT. AST. ($ MIL.)	RETAIL REITS TOT. AST. ($ MIL.)	APT REITS TOT. AST. ($ MIL.)	DIV. REITS TOT. AST. ($ MIL.)
1985 AVG	121	101	117	99	121
1986 AVG	75	114	141	112	154
1987 AVG	84	69	144	163	134
1988 AVG	108	67	141	149	153
1989 AVG	109	78	168	203	130
1990 AVG	109	87	167	197	139
1991 AVG	98	56	185	193	144
1992 AVG	102	51	229	231	156
1985 - 1992 WT. AVG	102	64	162	173	142

| YEAR	FIRST QUARTILE TOT. AST. ($ MIL.)	SECOND QUARTILE TOT. AST. ($ MIL.)	THIRD QUARTILE TOT. AST. ($ MIL.)	FOURTH QUARTILE TOT. AST. ($ MIL.)
1985 AVG	36	75	110	236
1986 AVG	31	76	134	258
1987 AVG	27	70	124	247
1988 AVG	29	79	133	257
1989 AVG	34	83	142	289
1990 AVG	31	81	128	298
1991 AVG	25	56	111	278
1992 AVG	24	55	116	323
1985 - 1992 WT. AVG	29	70	124	279

TABLE 1.6 The REIT Universe 1985 - 1992 : Selected Characteristics by Year

These statistics are based upon 75 REITs and 416 observations. Total assets and property assets are book values.
Total market assets is measured by (estimated market value of properties + other assets). G&A is general and administrative expenses.
The leverage ratio is defined as total liabilities / (total liabilities + market value of the equity) Weighted cap. rate, cash flow yield, HH index, and value weighted premium are defined in the paper.

YEAR	TOTAL ASSETS ($ MIL.)	PROP. ASSETS ($ MIL.)	PROP. ASSETS/ MKT. VALUE OF PROP. (%)	TOTAL ASSETS/ TOT MKT. AST. (%)	AVG. OCC. RATE (%)	WEIGHTED CAP. RATE (%)	NET INCOME ($ THOU.)
1985 AVG	119.6	73.6	70.5	76.1	92.1	8.8	6,534
1986 AVG	124.5	85.2	77.5	80.6	91	8.8	6,582
1987 AVG	119.7	84.0	82.6	84.1	90.5	8.7	5,252
1988 AVG	124.5	89.0	86.5	88	91.1	8.6	3,636
1989 AVG	136.8	100.1	88.2	88.4	90.1	8.7	4,352
1990 AVG	137.4	107.3	87	88.1	88.9	8.8	2,777
1991 AVG	119.8	93.7	89.6	91.3	86.8	9.1	2,037
1992 AVG	129.2	107.8	90.9	92.5	89.1	9.4	3,448
1985 - 1992 WT. AVG	126.8	94.7	85.2	87.0	89.5	8.9	3,963

YEAR	G&A / TOT. AST. (%)	CASH FLOW YIELD (%)	LEVERAGE RATIO (%)	HH INDEX BOTH (%)	HH INDEX PROP. (%)	HH INDEX RGN. (%)	VALUE WEIGHTED PREMIUM (DISCOUNT) (%)
1985 AVG	1.0	8.4	25	41.1	60.8	59.7	0.8
1986 AVG	1.3	7.3	26	40.6	62.0	56.3	13.4
1987 AVG	1.2	6.2	31	40.3	61.6	50.4	2.3
1988 AVG	1.1	6.8	34	44.5	66.1	62.7	1.0
1989 AVG	1.1	6.7	39	41.3	63.9	52.2	(4.7)
1990 AVG	1.1	8.3	48	40.2	62.5	55.1	(35.9)
1991 AVG	1.0	10.8	36	37.2	69.8	48.7	(23.4)
1992 AVG	1.0	10.2	35	35.2	69.5	46.4	(9.7)
1985 - 1992 WT. AVG	1.1	8.0	35	39.6	65.3	55.6	(8.3)

TABLE 2 The Survivor REITs 1985 - 1992 : Selected Characteristics by Year

These statistics are based upon 32 REITs and 256 observations. Total assets and property assets are book values.
Total market assets is measured by (estimated market value of properties + other assets). G&A is general and administrative expenses.
The leverage ratio is defined as total liabilities / (total liabilities + market value of the equity) Weighted cap. rate, cash flow yield, HH index, and value weighted premium are defined in the paper.

YEAR	TOTAL ASSETS ($ MIL.)	PROP. ASSETS ($ MIL.)	PROP. ASSETS/ MKT VALUE OF PROP. (%)	TOTAL ASSETS/ TOT MKT. AST. (%)	AVG. OCC. RATE (%)	WEIGHTED CAP. RATE (%)	NET INCOME ($ THOU.)
1985 AVG	119.9	74.7	70.5	76.1	92.4	8.8	6,499
1986 AVG	134.1	93.5	74.3	78.5	90.6	8.8	7,122
1987 AVG	143.0	100.8	78.3	79.5	90.4	8.7	6,148
1988 AVG	149.5	107.6	81.1	82.0	90.9	8.6	5,530
1989 AVG	164.0	119.5	79.2	81.3	90.8	8.6	5,921
1990 AVG	161.7	125.2	79.1	81.5	88.7	8.8	4,142
1991 AVG	170.1	130.2	82.4	83.9	88.7	9.1	4,553
1992 AVG	184.2	152.3	84.7	85.8	89.7	9.4	5,087
1985 - 1992 WT. AVG	153.3	113.0	78.7	81.1	90.2	8.8	5,625

YEAR	G&A/ TOT. AST. (%)	CASH FLOW YIELD (%)	LEVERAGE RATIO (%)	HH INDEX BOTH (%)	HH INDEX PROP. (%)	HH INDEX RGN. (%)	VALUE WEIGHTED PREMIUM (DISCOUNT) (%)
1985 AVG	1.0	8.2	25	40.6	60.7	60.5	0.8
1986 AVG	1.3	7.4	27	37.5	61.3	57.5	15.5
1987 AVG	1.1	6.3	32	36.0	59.9	55.6	(0.8)
1988 AVG	1.1	7.2	33	38.4	63.1	56.6	1.3
1989 AVG	1.1	6.7	40	37.2	61.5	55.8	(4.7)
1990 AVG	1.1	8.2	47	36.9	61.0	56.4	(33.7)
1991 AVG	1.0	10.4	47	38.0	61.3	56.6	(16.4)
1992 AVG	1.0	8.8	42	36.8	61.1	55.1	1.0
1985 - 1992 WT. AVG	1.1	7.7	36	37.7	61.2	56.8	(4.7)

TABLE 3 Reits by Property Type

We classify each REIT by property type when more than 50% of the property held is of one type. If no one property type is more than 50%, the REIT is classified as "diversified".
The leverage ratio is defined as total liabilities/ (total liabilities + market value of the equity). Value weighted premium and cash flow yield are defined in the paper.
G&A is general and administrative expenses. HH index is Hirschman-Herfindahl index.
We use two-way analysis of variance (without interaction terms) to test if there are significant yearly or property-type effects,
and then test if each category's mean is different from the overall mean. Asterisks (***,**,*) denote two-tailed significance at the 1%, 5%, and 10% levels, respectively

PANEL A

YEAR	OFF. REITS VALUE WT. PREM. (DISC.) (%)	WARE. REITS VALUE WT. PREM. (DISC.) (%)	RETAIL REITS VALUE WT. PREM. (DISC.) (%)	APT REITS VALUE WT. PREM. (DISC.) (%)	DIV. REITS VALUE WT. PREM. (DISC.) (%)
1985 AVG	8.4	8.2	(1.6)	(23.6)	7.7
1986 AVG	(4.2)	18.9	21.7	(7.4)	16.4
1987 AVG	12.5	(4.2)	5.7	5.4	(9.9)
1988 AVG	10.9	(24.4)	2.6	4.7	(1.5)
1989 AVG	16.2	(37.1)	(1.7)	(1.8)	(12.5)
1990 AVG	(31.6)	(44.5)	(32.7)	(63.1)	(29.7)
1991 AVG	(34.1)	(54.7)	(8.1)	(26.4)	(30.0)
1992 AVG	(38.2)	(55.5)	5.5	26.4	(10.6)
1985 - 1992 AVG	(7.5)	(24.2)(**)	(1.1)(*)	(10.7)	(8.7)
YEARLY EFFECT	F-VALUE = 5.1	PROB. > F = 0.00			
PROPERTY-TYPE EFFECT	F-VALUE = 2.0	PROB. > F = 0.12			

PANEL B

YEAR	OFF. REITS LEVERAGE RATIO (%)	WARE. REITS LEVERAGE RATIO (%)	RETAIL REITS LEVERAGE RATIO (%)	APT REITS LEVERAGE RATIO (%)	DIV. REITS LEVERAGE RATIO (%)
1985 AVG	12	35	27	33	27
1986 AVG	18	35	30	45	17
1987 AVG	27	40	32	49	23
1988 AVG	31	44	29	57	28
1989 AVG	31	56	33	69	44
1990 AVG	42	62	44	76	34
1991 AVG	40	22	42	60	41
1992 AVG	45	23	36	46	39
1985 - 1992 AVG	31(**)	39	34	54(***)	32(**)
YEARLY EFFECT	F-VALUE = 4.57	PROB. > F = 0.00			
PROPERTY-TYPE EFFECT	F-VALUE = 9.82	PROB. > F = 0.00			

TABLE 3 Reits by Property Type (Continued)

PANEL C

YEAR	OFF. REITS HH PROP. INDEX (%)	WARE. REITS HH PROP. INDEX (%)	RETAIL REITS HH PROP. INDEX (%)	APT REITS HH PROP. INDEX (%)	DIV. REITS HH PROP. INDEX (%)
1985 AVG	75.9	58.3	65.9	53.5	34.4
1986 AVG	78.7	70.2	67.5	54.8	37.2
1987 AVG	70.3	65.8	71.3	51.6	34.1
1988 AVG	68.5	61.3	73.4	80.7	37.0
1989 AVG	67.5	65.5	72.9	82.6	35.0
1990 AVG	64.1	56.0	71.9	68.9	31.7
1991 AVG	63.9	86.0	72.1	60.9	33.3
1992 AVG	64.4	83.4	77.7	62.6	34.7
1985 - 1992 AVG	69.2(***)	68.3(**)	71.6(***)	64.5	34.7(***)
YEARLY EFFECT	F-VALUE = 0.65	PROB. > F = 0.71			
PROPERTY-TYPE EFFECT	F-VALUE = 27.72	PROB. > F = 0.00			

PANEL D

YEAR	OFF. REITS HH RGN. INDEX (%)	WARE. REITS HH RGN. INDEX (%)	RETAIL REITS HH RGN. INDEX (%)	APT REITS HH RGN. INDEX (%)	DIV. REITS HH RGN. INDEX (%)
1985 AVG	62.1	52.1	59.7	64.5	69.4
1986 AVG	57.7	34.9	60.5	86.1	58.4
1987 AVG	60.7	39.2	64.3	80.2	50.4
1988 AVG	57.1	44.0	66.4	98.2	45.6
1989 AVG	57.5	36.6	63.2	97.7	48.6
1990 AVG	55.1	34.8	62.8	79.8	59.3
1991 AVG	58.8	29.2	65.7	68.5	38.3
1992 AVG	56.0	32.3	57.5	66.7	48.0
1985 - 1992 AVG	58.1	37.9(***)	62.5	80.2(***)	52.3(**)
YEARLY EFFECT	F-VALUE = 1.23	PROB. > F = 0.32			
PROPERTY-TYPE EFFECT	F-VALUE = 29.48	PROB. > F = 0.00			

TABLE 3   Reits by Property Type (Continued)

PANEL E

YEAR	OFF. REITS G&A/TOT. AST. (%)	WARE. REITS G&A/TOT. AST. (%)	RETAIL REITS G&A/TOT. AST. (%)	APT REITS G&A/TOT. AST. (%)	DIV. REITS G&A/TOT. AST. (%)
1985 AVG	0.9	0.6	1.0	0.9	1.2
1986 AVG	0.8	1.0	0.8	0.6	2.4
1987 AVG	1.4	1.3	1.0	0.5	1.6
1988 AVG	1.1	1.2	1.1	0.7	1.7
1989 AVG	1.1	1.3	0.9	0.6	2.1
1990 AVG	0.8	2.3	1.0	1.3	1.4
1991 AVG	1.2	0.9	0.9	1.1	1.2
1992 AVG	1.5	1.1	0.7	0.8	1.2
1985 - 1992 AVG	1.1	1.2	0.9(**)	0.8(***)	1.6(***)
YEARLY EFFECT	F-VALUE = 0.53	PROB. > F = 0.80			
PROPERTY-TYPE EFFECT	F-VALUE = 6.04	PROB. > F = 0.00			

PANEL F

YEAR	OFF. REITS CASH FLOW YIELD (%)	WARE. REITS CASH FLOW YIELD (%)	RETAIL REITS CASH FLOW YIELD (%)	APT REITS CASH FLOW YIELD (%)	DIV. REITS CASH FLOW YIELD (%)
1985 AVG	8.2	4.7	7.9	7.2	9.0
1986 AVG	6.2	3.3	7.6	7.6	8.3
1987 AVG	5.9	6.5	6.3	5.8	7.2
1988 AVG	5.9	8.9	7.2	7.0	7.1
1989 AVG	5.7	9.0	7.1	5.8	6.4
1990 AVG	7.4	15.5	8.4	10.6	8.4
1991 AVG	9.9	12.8	10.1	13.2	12.1
1992 AVG	10.3		8.4	8.2	9.7
1985 - 1992 AVG	7.5	8.7	7.9	8.2	8.5
YEARLY EFFECT	F-VALUE = 9.99	PROB. > F = 0.00			
PROPERTY-TYPE EFFECT	F-VALUE = 0.83	PROB. > F = 0.52			

TABLE 4 REITs by Size Quartiles

The size segmentation uses quartiles based on total assets.
The leverage ratio is defined as total liabilities/ (total liabilities + market value of the equity). Value weighted premium and cash flow yield are defined in the paper.
G&A is general and administrative expenses. HH index is Hirschman-Herfindahl index.
We use two-way analysis of variance (without interaction terms) to test if there are significant yearly or property-type effects,
and then test if each category's mean is different from the overall mean. Asterisks (***, **, *) denote two-tailed significance at the 1%, 5%, and 10% levels, respectively

PANEL A

YEAR	FIRST QUARTILE VALUE WT. PREM. (DISC.) (%)	SECOND QUARTILE VALUE WT. PREM. (DISC.) (%)	THIRD QUARTILE VALUE WT. PREM. (DISC.) (%)	FOURTH QUARTILE VALUE WT. PREM. (DISC.) (%)
1985 AVG	4.1	(13.7)	(4.7)	20.0
1986 AVG	(1.8)	(1.3)	17.2	37.4
1987 AVG	(9.9)	3.3	(1.6)	18.3
1988 AVG	(14.9)	7.3	0.7	5.7
1989 AVG	(31.0)	(7.1)	6.5	3.4
1990 AVG	(42.9)	(42.7)	(28.1)	(32.1)
1991 AVG	(51.5)	(34.4)	(20.4)	(3.6)
1992 AVG	(49.9)	(26.4)	0.5	18.4
1985 - 1992 AVG	(24.7)(***)	(14.4)(**)	(3.7)	8.4(***)
YEARLY EFFECT	F-VALUE = 9.22	PROB. > F = 0.00		
SIZE EFFECT	F-VALUE = 13.60	PROB. > F = 0.00		

PANEL B

YEAR	FIRST QUARTILE LEVERAGE RATIO (%)	SECOND QUARTILE LEVERAGE RATIO (%)	THIRD QUARTILE LEVERAGE RATIO (%)	FOURTH QUARTILE LEVERAGE RATIO (%)
1985 AVG	16	24	29	30
1986 AVG	23	22	26	35
1987 AVG	29	27	22	44
1988 AVG	34	29	36	35
1989 AVG	45	36	40	35
1990 AVG	44	53	46	47
1991 AVG	25	30	46	44
1992 AVG	25	29	52	33
1985 - 1992 AVG	30(**)	31	37	38(**)
YEARLY EFFECT	F-VALUE = 4.36	PROB. > F = 0.00		
SIZE EFFECT	F-VALUE = 2.71	PROB. > F = 0.07		

TABLE 4   REITs by Size Quartiles (Continued)

PANEL C

YEAR	FIRST QUARTILE HH PROP. INDEX (%)	SECOND QUARTILE HH PROP. INDEX (%)	THIRD QUARTILE HH PROP. INDEX (%)	FOURTH QUARTILE HH PROP. INDEX (%)
1985 AVG	69.9	43.6	70.0	60.0
1986 AVG	70.5	52.1	61.0	64.3
1987 AVG	66.7	57.9	58.9	62.7
1988 AVG	74.0	61.2	57.2	72.2
1989 AVG	69.7	58.4	58.9	68.5
1990 AVG	67.5	61.0	53.6	67.7
1991 AVG	81.4	76.3	58.7	63.2
1992 AVG	83.1	74.5	55.3	65.2
1985 - 1992 AVG	72.8(***)	60.6(**)	59.2(**)	65.5
YEARLY EFFECT	F-VALUE = 1.08	PROB. > F = 0.41		
SIZE EFFECT	F-VALUE = 6.41	PROB. > F = 0.00		

PANEL D

YEAR	FIRST QUARTILE HH RGN. INDEX (%)	SECOND QUARTILE HH RGN. INDEX (%)	THIRD QUARTILE HH RGN. INDEX (%)	FOURTH QUARTILE HH RGN. INDEX (%)
1985 AVG	59.7	75.8	67.7	44.3
1986 AVG	56.3	81.7	59.5	45.9
1987 AVG	50.4	73.1	58.2	52.6
1988 AVG	62.7	59.5	56.4	63.7
1989 AVG	52.2	55.3	54.3	69.3
1990 AVG	55.1	54.9	52.0	66.4
1991 AVG	48.7	37.5	50.9	62.6
1992 AVG	46.4	30.1	47.5	67.4
1985 - 1992 AVG	53.9	58.5	55.8	59.0
YEARLY EFFECT	F-VALUE = 0.82	PROB. > F = 0.58		
SIZE EFFECT	F-VALUE = 0.35	PROB. > F = 0.79		

TABLE 4 REITs by Size Quartiles (Continued)

PANEL E

YEAR	FIRST QUARTILE G&A/TOT. AST. (%)	SECOND QUARTILE G&A/TOT. AST. (%)	THIRD QUARTILE G&A/TOT. AST. (%)	FOURTH QUARTILE G&A/TOT. AST. (%)
1985 AVG	1.6	1.6	0.7	0.8
1986 AVG	1.7	1.3	0.8	1.4
1987 AVG	1.5	1.7	1.3	1.0
1988 AVG	2.2	1.4	1.4	0.8
1989 AVG	2.1	1.4	1.7	0.7
1990 AVG	1.8	1.3	1.4	0.9
1991 AVG	1.3	1.0	1.2	0.9
1992 AVG	1.3	1.3	1.0	1.0
1985 - 1992 AVG	1.7(***)	1.4	1.2	0.9(***)
YEARLY EFFECT	F-VALUE = 0.99	PROB. > F = 0.46		
SIZE EFFECT	F-VALUE = 10.46	PROB. > F = 0.00		

PANEL F

YEAR	FIRST QUARTILE CASH FLOW YIELD (%)	SECOND QUARTILE CASH FLOW YIELD (%)	THIRD QUARTILE CASH FLOW YIELD (%)	FOURTH QUARTILE CASH FLOW YIELD (%)
1985 AVG	8.6	7.1	8.4	8.9
1986 AVG	6.0	7.6	8.4	7.1
1987 AVG	6.2	6.0	6.0	6.6
1988 AVG	6.2	6.3	7.1	7.5
1989 AVG	7.9	6.1	6.0	7.0
1990 AVG	9.8	8.6	7.6	7.9
1991 AVG	11.4	9.0	12.2	10.2
1992 AVG	12.4	10.9	12.2	7.7
1985 - 1992 AVG	8.6	7.7	8.5	7.9
YEARLY EFFECT	F-VALUE = 9.85	PROB. > F = 0.00		
SIZE EFFECT	F-VALUE = 1.20	PROB. > F = 0.33		