

An Industry Profile of Corporate Real Estate

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Abstract. Corporate real estate is increasingly becoming an area of emphasis for real estate professionals and academics, particularly in asset management. Using balance sheet data on real estate corporate holdings, total assets, and firm market values from 1984–1991, this article provides an analysis of real estate holdings both by industry sector and asset subtype. Industry rank order by gross value of total real estate holdings and asset subtype, real estate as a percent of assets, and real estate relative to market value of the firm are presented in this study, as is the growth in corporate real estate holdings.

Introduction

Corporate real estate is an evolving area of specialization within the real estate industry that has grown significantly in importance and level of recognition over the last decade. Within academic communities, authors are writing textbooks and developing specialized courses for the study of corporate real estate asset management.¹ Corporate employees who share a common real estate interest are forming professional trade associations to further education, growth, and mutual understanding of the challenges and opportunities facing corporate real estate professionals.² Much of this is common knowledge to those who follow advancements in the real estate industry. However, as with any area of specialization, laying a foundation that substantiates the discipline as a viable area of emphasis is needed.

The purpose of this article is to provide additional foundation and background information on corporate real estate. It is historical in perspective, and presents an analysis of corporate real estate holdings by industry sector and property subtype for the 1984–1991 period. While descriptive in nature, this information highlights the growth in corporate real estate assets over the period of study; identifies industry groups with the largest absolute and relative corporate real estate holdings; describes changes in industry rank order of real estate holdings over time; and identifies concentrations of corporate real estate asset holdings in buildings, construction in progress, land, leases, and natural resources. It is hoped that an analysis of corporate real estate holdings, such as presented in this article, will support further study and advancement in the area of corporate real estate research.

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Literature Review

Although the importance of corporate real estate received some coverage prior to 1980 (see, for example, Brown, 1979), the vast majority of research and textbooks has evolved during the last decade. The hidden value of corporate real estate received widespread recognition with a 1983 survey-based article written by Zeckhauser and Silverman (1983) which found that many corporations had no comprehensive inventory or centralized knowledge of their real estate holdings or values. Additional survey-based research followed on various corporate real estate-related topics such as managing and disposing of surplus corporate real estate (Nourse and Kingery, 1987; Veale, 1987), financing corporate real estate (Redman and Tanner, 1991), acquisition techniques (Redman and Tanner, 1998), and real estate performance factors (Hoffman et al., 1990; Pittman and Parker, 1989). More empirical research has also recently been published on corporate real estate purchase, sale, and leaseback transactions (Glascock et al., 1989, 1991; Rutherford, 1990) and the wealth effects of merging with or forming a real estate unit (McIntosh et al., 1989; Rutherford and Nourse, 1988; Rutherford and Stone, 1989). Research on a variety of corporate-related topics such as vertical integration (Nourse, 1990), residual equity leases (Manning, 1991), risk-adjusted operating lease rents (Albert and McIntosh, 1989), and the use of outside appraisals by corporate real estate executives (Sladack, 1991) is also found in the literature.

While most of the scholarly research on corporate real estate is found in *The Journal of Real Estate Research*,³ many articles have appeared as well in other respected journals. Professional publications such as *Site Selections* and the *National Real Estate Investor* provide continuous coverage on more topical corporate real estate subjects such as outsourcing, transfer pricing, benchmarking, and downsizing. Over thirty-five corporate real estate-related articles were found in these two publications for the 1990–1992 period.

Corporate real estate asset management is now a recognized area of expertise that provides many career opportunities for employment. This article will build on existing published research on corporate real estate by identifying industry sectors that historically have owned significant amounts of real estate, both in absolute and relative terms. The research is undertaken for purposes of expanding the common body of knowledge on corporate real estate by classifying major industry players, as well as trends in rank and holdings in the area of corporate real estate.

Data and Methodology

The authors obtained the data used in this analysis from Standard & Poor's Compustat PC Plus corporate balance sheet information on publicly owned companies traded over the major exchanges.⁴ The number of individual firms examined varies from year to year due to new listings, delistings, mergers, etc. A representative idea of the population size, however, is indicated by the 7,739 firms listed in the database for 1991. The 1984–1991 period of study was selected for two reasons. First, data on real estate asset subtypes (buildings, land, etc.) are only available for this period. Second, the time period of study parallels the evolutionary development of corporate real estate as a separate field of study.

Real estate holdings are assets classified under the property, plant, and equipment section of a corporate balance sheet. They are entered at historical cost and do not represent market value of the assets. Complete real estate data by asset subtype are available for all industry sectors, except banks, utilities, life insurance, or property and casualty firms.⁵ The six real estate asset subtypes examined in this article include buildings, construction in progress, land, leases, natural resources, and an other category. They are defined as follows.

1. *Buildings* represent the cost of all buildings included in a company's property, plant, and equipment account. The item includes improvements, leaseholds and leasehold improvements when classified with buildings, and parking structures that do not generate revenue.

2. *Construction in Progress* represents the capitalized amount of plant and equipment construction that has not been completed. The item includes funds for construction but excludes property held for future use.

3. *Land* represents the cost of land used in the production of revenue. The item includes land and improvements (including roads), leases and leasehold improvements (when classified with land), and parking lots that do not generate revenue.

4. *Leases* represent the capitalized value of leases and leasehold improvements included in property, plant, and equipment. The item includes leases and leasehold improvements when classified separately, but excludes equipment leased to others.⁶

5. *Natural Resources* represent the cost of irreplaceable natural resources. The item includes mining properties, oil fields, and timberlands.

6. *Other* represents additional components of property, plant, and equipment that cannot be classified as land, natural resources, buildings, machinery and equipment, leases, or construction in progress. The item includes other property when less than 10% of the property, plant, and equipment account; golf courses; tangibles; property held for future use; property to be discontinued; rental properties; revenue-producing parking lots; and software costs from software developed or purchased for future internal use.

The authors add individual firm data within subgroups using SIC industry classification codes, and then aggregate the data again into larger SIC classification groups. For example, SIC 7000 represents an aggregate industry group for Hotels and Other Lodging Places with thirty-nine firms listed in 1991. It is the total of all firms listed under related subclassification codes for hotels, motels, and tourist courts (SIC 7010 and 7011), rooming and boarding houses (SIC 7020 and 7021), camps and trailering parks (SIC 7030), sporting and recreation camps (SIC 7032), trailer parks for transients (SIC 7033), and membership hotels and lodging facilities (SIC 7040 and 7041). Because only industries that had more than nominal balance sheet entries for real estate in 1984–1991 are analyzed in this article, we identify sixty-five industry groups that own real estate using the SIC classification scheme.⁷ The number of firms actually counted within the sixty-five industry groups consistently used in this study varied from a minimum of 2,055 to 3,020 per year.

Exhibit 1
Rank Order Comparison of 1984 and 1991 Industry Real Estate
Holdings at Cost

Industry Group	SIC Code	1991 Rank	Real Estate at Cost '91 (in Billions)	1984 Rank	Real Estate at Cost '84 (in Billions)	'84-'91 Growth
CHEMICALS & ALLIED PRODUCTS	2800	1	\$67,718.28	2	\$36,936.71	9.05%
TRANSPORTATION EQUIPMENT	3700	2	48,990.65	1	57,898.15	-2.36%
GENERAL MERCHANDISE STORES	5300	3	43,215.06	7	18,340.38	13.03%
PRIMARY METAL INDUSTRIES	3300	4	37,130.37	6	19,571.07	9.58%
INDL, COMM'L MACHY, COMPUTER EQ	3500	5	34,338.47	3	22,966.07	5.91%
PAPER AND ALLIED PRODUCTS	2600	6	32,256.39	5	20,053.47	7.03%
FOOD AND KINDRED PRODUCTS	2000	7	31,749.89	8	18,262.57	8.22%
ELECTR, OTH ELEC EQ, EX CMP	3600	8	22,858.11	4	20,807.26	1.35%
EATING AND DRINKING PLACES	5800	9	21,878.01	13	8,190.34	15.07%
FOOD STORES	5400	10	19,172.00	11	9,214.98	11.03%
MEAS INSTR; PHOTO GDS; WATCHES	3800	11	15,042.70	10	10,090.58	5.87%
COMMUNICATIONS	4800	12	14,907.61	9	10,610.95	4.98%
HEALTH SERVICES	8000	13	13,898.42	12	8,353.78	7.54%
AMUSEMENT & RECREATION SVCS	7900	14	11,774.87	15	3,971.05	16.80%
PRINTING, PUBLISHING & ALLIED	2700	15	9,154.59	16	3,665.18	13.97%
ELECTRIC, GAS, SANITARY SERV	4900	16	8,396.57	30	1,154.52	32.77%
STONE, CLAY, GLASS, CONCRETE PD	3200	17	8,126.52	17	3,657.52	12.08%
BUSINESS SERVICES	7300	18	7,081.87	19	2,621.34	15.26%
MOTOR FREIGHT TRANS, WAREHOUS	4200	19	6,299.86	24	2,036.01	17.51%
FABR METAL, EX MACHY, TRANS EQ	3400	20	5,586.74	18	3,275.93	7.92%
MISCELLANEOUS RETAIL	5900	21	5,075.45	29	1,548.07	18.49%
RUBBER & MISC PLASTICS PRODS	3000	22	4,873.94	27	1,703.66	16.20%
APPAREL AND ACCESSORY STORES	5600	23	4,693.94	23	2,143.94	11.85%
TOBACCO PRODUCTS	2100	24	4,146.08	25	1,986.15	11.09%
NONDURABLE GOODS-WHOLESALE	5100	25	3,931.26	22	2,216.84	8.53%
HOTELS, OTHER LODGING PLACES	7000	26	3,763.51	26	1,918.11	10.11%
BLDG MATL, HARDWR, GARDEN-RETL	5200	27	3,289.64	32	987.81	18.75%
TEXTILE MILL PRODUCTS	2200	28	3,099.82	28	1,568.91	10.22%
PETE REFINING & RELATED INDS	2900	29	2,510.22	50	132.39	52.25%
TRANSPORTATION BY AIR	4500	30	2,122.22	21	2,321.21	-1.27%

ENGR, ACC, RESH, MGMT, REL SVCS	8700	31	2,072.46	45	347.59	29.05%
WATER TRANSPORTATION	4400	32	1,996.20	35	618.39	18.22%
FURNITURE AND FIXTURES	2500	33	1,981.67	31	997.15	10.31%
REAL ESTATE RELATED	6500	34	1,826.75	40	565.46	18.24%
MOTION PICTURES	7800	35	1,728.32	52	100.84	50.07%
AGRICULTURE PRODUCTION-CROPS	100	36	1,697.47	44	400.82	22.90%
AUTO REPAIR, SERVICES, PARKING	7500	37	1,639.30	38	600.80	15.42%
DURABLE GOODS-WHOLESALE	5000	38	1,488.55	33	911.12	7.26%
LUMBER AND WOOD PDS, EX FURN	2400	39	1,200.64	39	587.38	10.75%
OIL AND GAS EXTRACTION	1300	40	1,080.55	20	2,525.25	-11.42%
SOCIAL SERVICES	8300	41	998.46	53	90.54	40.91%
HEAVY CONSTR-NOT BLDG CONSTR	1600	42	937.42	34	786.34	2.56%
HMG, QUARRY NONHTL MINERALS	1400	43	926.76	37	604.87	6.29%
HOME FURNITURE & EQUIP STORE	5700	44	874.95	43	419.12	11.09%
AUTO DEALERS, GAS STATIONS	5500	45	807.10	49	134.54	29.17%
APPAREL & OTHER FINISHED PDS	2300	46	629.20	41	462.18	4.51%
MISC MANUFACTURING INDUSTRIES	3900	47	615.24	47	249.74	13.75%
BLDG CONSTR-GEN CONTR, OP BLDR	1500	48	511.45	36	608.89	-2.46%
COAL MINING	1200	49	386.15	42	437.89	-1.78%
TRANSPORTATION SERVICES	4700	50	359.21	48	215.67	7.56%
INS AGENTS, BROKERS & SERVICE	6400	51	307.63	59	32.91	37.62%
EDUCATIONAL SERVICES	8200	52	280.08	51	104.57	15.11%
PERSONAL SERVICES	7200	53	277.63	46	263.31	0.76%
HOLDING, OTHER INVEST OFFICES	6700	54	250.07	54	62.98	21.77%
CONSTRUCTION-SPECIAL TRADE	1700	55	104.36	56	57.39	8.92%
LEATHER AND LEATHER PRODUCTS	3100	56	91.83	57	40.99	12.21%
NONDEPOSITORY CREDIT INSTN	6100	57	80.86	14	4,640.85	-43.93%
METAL MINING	1000	58	74.83	55	57.49	3.84%
INSURANCE CARRIERS	6300	59	46.21	64	1.82	58.78%
SECURITY & COMMODITY BROKERS	6200	60	36.48	58	35.14	0.54%
RAILROAD TRANSPORTATION	4000	61	23.79	65	1.43	49.35%
AGRICULTURAL SERVICES	700	62	17.78	60	11.34	6.63%
AGRIC PROD-LVSTK, ANIMAL SPEC	200	63	17.40	61	7.17	13.50%
MISC REPAIR SERVICES	7600	64	16.21	63	2.21	32.89%
DEPOSITORY INSTITUTIONS	6000	65	4.18	62	4.05	0.45%
TOTALS			\$522,470.25		\$315,193.21	7.49%

Source: Compustat Data

The Analysis

1991 and 1984 Absolute Real Estate Holdings at Cost

For each year, the dollar amount of aggregate real estate holdings is computed within each SIC industry group by adding historical cost totals for buildings, construction in progress, land, leases, natural resources, and other.⁸ Exhibit 1 contains rank order lists of aggregate 1991 and 1984 real estate holdings sorted by SIC industry groups. The top five ranked industry groups with the largest real estate holdings at cost in 1991 are Chemicals and Allied Products (SIC 2800), Transportation Equipment (SIC 3700), General Merchandise Stores (SIC 5300), Primary Metal Industries (SIC 3300), and Industrial, Commercial Machinery, and Computer Equipment (SIC 3500).

In 1984, however, the top five ranked industry groups were Transportation Equipment (SIC 3700), Chemicals and Allied Products (SIC 2800), Industrial, Commercial Machinery, and Computer Equipment (SIC 3500), Electrical and Other Electrical Equipment, Excluding CMP (SIC 3600), and Paper and Allied Products (SIC 2600). Thus, three of the top five 1984 industry groups with the largest real estate holdings at cost remained in the top five of 1991 industry groups. The remaining two of the top five 1984 industry groups fell to sixth and eighth place in the 1991 rankings.

Two of the top five 1991 ranked industry groups significantly increased their real estate holdings at cost and rank order from 1984 levels. They are General Merchandise Stores (SIC 5300) with a 13.03% annual compound growth rate which moved from seventh place in 1984 to third place in 1991, and Primary Metal Industries (SIC 3300) with a 9.58% growth rate which moved from sixth place in 1984 to fourth place in 1991. It should be noted that the thirteen highest ranked 1984 industry groups by real estate holdings at cost were identical to the top thirteen 1991 industry groups, except for differences in rank order.

Of additional interest in Exhibit 1 is the comparative low rank of two industry groups, Real Estate Related (SIC 6500) with a 1991 rank of 34, and Holding and Other Investment Offices (SIC 6700) with a 1991 rank of 54. The former industry group contains real estate lessors and operators of residential and non-residential buildings (such as Rouse Co.), managers (such as Grubb and Ellis), dealers (such as Southmark), and developers (such as Arvida JMB). The latter industry group contains unit trusts, oil and mineral royalty traders, patent owners, other investors, and real estate investments trusts (with 148 REITS listed in 1991, such as Rockefeller Center and Storage Equity).

1991 and 1984 Real Estate Holdings as a Percent of Assets

While the magnitude of absolute dollar holdings in corporate-owned real estate is important to analyze, relative rank order of aggregate holdings in real estate is probably of greater significance to the field of corporate real estate asset management. Aggregate real estate holdings as a percent of total assets was calculated for each industry group classification for the years 1991 and 1984.⁹ Exhibit 2 contains the rank

order comparison of 191 and 1984 relative real estate holdings as a percent of assets with industry groups stratified into three different categories based on asset size.¹⁰ As might be expected, there is noticeable overlap in top ranked 1991 industry groups listed in the largest asset category of Exhibit 2 as compared to Exhibit 1. For example, six of the top ten 1991 industry groups are common to both rankings in Exhibit 1 and the largest asset category in Exhibit 2.

With real estate holdings as a percent of assets in the largest asset category, the top five ranked 1991 industry groups in Exhibit 2 are Primary Metal Industries (SIC 3300), General Merchandise Stores (SIC 5300), Paper and Allied Products (SIC 2600), Chemicals & Allied Products (SIC 2800), and Printing and Publishing (SIC 2700). Three of the top five 1984 industry groups by relative real estate holdings in the largest asset category shown in Exhibit 2 were also in the top five 1991 industry groups. The remaining two of the top five 1984 industry groups by relative real estate holdings in the largest asset category fell to tenth and eleventh places in the 1991 rankings. 1984-1991 annual compound growth rates for real estate as a percent of total assets in the largest asset category of Exhibit 2 were 75% negative, 12.5% positive and less than 3%, and 12.5% positive and greater than 25%.

In the middle total asset category, the top five ranked 1991 industry groups in Exhibit 2 are Eating and Drinking Places (SIC 5800), Amusement and Recreation Services (SIC 7900), Health Services (SIC 8000), Food Stores (SIC 5400), and Motor Freight Transportation and Warehouses (SIC 4200). Four of the top five 1984 industry groups by relative real estate holdings in the second largest asset category shown in Exhibit 2 were also in the top five 1991 industry groups. The remaining 1984 industry group fell to eighth place in the 1991 rankings. 1984-1991 annual compound growth rates for real estate as a percent of total assets in the middle asset category of Exhibit 2 were 37.5% negative, 37.5% positive and less than 10%, and 25% positive and greater than 10%.

The real estate industry groups for lessors and developers (SIC 6500), and for REITs (SIC 6700), are both grouped in the second asset category in Exhibit 2. With respect to the twenty-four industries in the same middle asset size category, their 1991 ranks for real estate as a percent of total assets were 12 and 23, respectively.

1991 and 1984 Real Estate Holdings as a Percent of Stock Value

Of related interest is the rank order of industry groups using aggregate real estate holdings at cost as a percent of the market value of the industry.¹¹ This is a relative measure which can be used to gain another perspective on the importance which real estate holdings have to corporations. 1991 and 1984 relative real estate holdings as a percent of stock market value, with industry groups stratified into three different categories based on market value size, are contained in Exhibit 3.¹² Because of the relationship between total asset size and market value of a firm, there is noticeable overlap between the top ranked industry groups in the largest market value category of Exhibit 3 as compared to those ranked in the largest asset category of Exhibit 2. Seven of the top ten industry groups are common to the largest sized categories in both exhibits.

In 1991, the top five ranked industry groups using real estate holdings as a percent

Exhibit 2
Rank Order Comparison of 1984 and 1991 Industry Real Estate
Holdings as a Percent of Assets

Industry Group	SIC Code	1991 Rank	1991 RE/TA	1984 Rank	1984 RE/TA	'84-'91 Growth
Total 1991 Assets greater than \$80,000 billion						
PRIMARY METAL INDUSTRIES	3300	1	16.18%	3	15.36%	0.75%
GENERAL MERCHANDISE STORES	5300	2	13.66%	6	11.35%	2.68%
PAPER AND ALLIED PRODUCTS	2600	3	12.82%	1	20.64%	-6.57%
CHEMICALS & ALLIED PRODUCTS	2800	4	11.89%	4	13.38%	-1.67%
PRINTING, PUBLISHING & ALLIED	2700	5	7.14%	7	10.86%	-5.81%
FOOD AND KINDRED PRODUCTS	2000	6	5.67%	8	10.85%	-8.85%
MEAS INSTR; PHOTO GDS; WATCHES	3800	7	5.58%	11	9.05%	-6.67%
BUSINESS SERVICES	7300	8	5.56%	9	10.40%	-8.56%
INDL, COMM MACHY, COMPUTER EQ	3500	9	4.47%	12	6.23%	-4.62%
ELECTRIC, GAS, SANITARY SERV	4900	10	4.06%	2	19.65%	-20.18%
TRANSPORTATION EQUIPMENT	3700	11	3.27%	5	11.90%	-16.85%
ELECTR, OTH ELEC EQ, EX CMP	3600	12	2.90%	10	9.82%	-16.00%
TOBACCO PRODUCTS	2100	13	2.35%	13	5.58%	-11.63%
NONDURABLE GOODS-WHOLESALE	5100	14	2.22%	16	2.17%	0.34%
COMMUNICATIONS	4800	15	1.55%	17	1.96%	-3.34%
DURABLE GOODS-WHOLESALE	5000	16	1.12%	18	1.90%	-7.29%
TRANSPORTATION BY AIR	4500	17	0.84%	14	3.44%	-18.30%
OIL AND GAS EXTRACTION	1300	18	0.60%	15	2.72%	-19.49%
PETE REFINING & RELATED INDS	2900	19	0.08%	21	0.02%	26.53%
RAILROAD TRANSPORTATION	4000	20	0.02%	22	0.00%	62.12%
INSURANCE CARRIERS	6300	21	0.00%	23	0.00%	33.92%
NONDEPOSITORY CREDIT INSTN	6100	22	0.00%	19	0.88%	-53.51%
SECURITY & COMMODITY BROKERS	6200	23	0.00%	20	0.02%	-27.25%
DEPOSITORY INSTITUTIONS	6000	24	0.00%	24	0.00%	-11.79%
Total 1991 Assets between \$10,000 and \$80,000 billion						
EATING AND DRINKING PLACES	5800	1	48.07%	1	48.74%	-0.20%
AMUSEMENT & RECREATION SVCS	7900	2	41.46%	3	36.91%	1.68%
HEALTH SERVICES	8000	3	33.70%	2	39.58%	-2.27%
FOOD STORES	5400	4	28.05%	4	26.56%	0.78%
MOTOR FREIGHT TRANS, WAREHOUS	4200	5	18.93%	7	15.08%	3.30%

MISCELLANEOUS RETAIL	5900	6	16.32%	9	12.73%	3.61%
STONE, CLAY, GLASS, CONCRETE PD	3200	7	16.28%	6	18.94%	-2.14%
APPAREL AND ACCESSORY STORES	5600	8	15.34%	5	20.04%	-3.75%
FABR METAL, EX MACHY, TRANS EQ	3400	9	11.36%	10	11.69%	-0.41%
FURNITURE AND FIXTURES	2500	10	11.12%	8	13.30%	-2.53%
ENGR, ACC, RESH, MGMT, REL SVCS	8700	11	10.83%	19	3.01%	20.06%
REAL ESTATE RELATED	6500	12	10.73%	12	6.90%	6.52%
WATER TRANSPORTATION	4400	13	10.17%	13	6.77%	5.99%
RUBBER & MISC PLASTICS PRODS	3000	14	9.66%	17	4.78%	10.58%
TEXTILE MILL PRODUCTS	2200	15	9.20%	11	8.99%	0.33%
AUTO REPAIR, SERVICES, PARKING	7500	16	6.68%	15	5.40%	3.10%
MOTION PICTURES	7800	17	6.27%	20	1.14%	27.54%
MNG, QUARRY NONMTL MINERALS	1400	18	6.23%	14	5.86%	0.87%
HEAVY CONSTR-NOT BLDG CONSTR	1600	19	3.58%	21	1.01%	19.77%
APPAREL & OTHER FINISHED PDS	2300	20	3.07%	16	5.22%	-7.29%
INS AGENTS, BROKERS & SERVICE	6400	21	1.54%	23	0.53%	16.40%
BLDG CNSTR-GEN CONTR, OP BLDG	1500	22	1.09%	18	4.45%	-18.21%
HOLDING, OTHER INVEST OFFICES	6700	23	0.39%	24	0.20%	10.37%
METAL MINING	1000	24	0.29%	22	0.73%	-12.42%
Total 1991 Assets less than \$10,000 billion						
SOCIAL SERVICES	8300	1	74.51%	3	27.86%	15.09%
AGRIC PROD-LVSTK, ANIMAL SPEC	200	2	55.40%	12	7.84%	32.23%
HOTELS, OTHER LODGING PLACES	7000	3	50.34%	1	47.84%	0.73%
AGRICULTURE PRODUCTION-CROPS	100	4	31.80%	6	17.17%	9.20%
BLDG MATL, HARDWR, GARDEN-RETL	5200	5	31.31%	2	27.97%	1.63%
AUTO DEALERS, GAS STATIONS	5500	6	24.66%	7	17.06%	5.40%
LUMBER AND WOOD PDS, EX FURN	2400	7	16.23%	4	19.22%	-2.38%
EDUCATIONAL SERVICES	8200	8	8.51%	10	12.63%	-5.48%
HOME FURNITURE & EQUIP STORE	5700	9	7.48%	5	17.41%	-11.37%
MISC REPAIR SERVICES	7600	10	5.97%	16	1.68%	19.85%
COAL MINING	1200	11	4.98%	9	14.35%	-14.03%
MISC MANUFACTURING INDUSTRIES	3900	12	4.76%	13	6.37%	-4.08%
AGRICULTURAL SERVICES	700	13	3.26%	15	2.60%	3.28%
PERSONAL SERVICES	7200	14	2.77%	8	15.96%	-22.13%
TRANSPORTATION SERVICES	4700	15	2.69%	14	4.46%	-6.97%
LEATHER AND LEATHER PRODUCTS	3100	16	2.59%	17	1.55%	7.59%
CONSTRUCTION-SPECIAL TRADE	1700	17	2.48%	11	9.12%	-16.98%

Note: RE/TA for '91 SICs 6300, 6100, 6200, 6000, and '84 SICs 4000, 6300, and 6000 are rounded down to .00%.
Source: Compustat Data

Exhibit 3
Rank Order Comparison of 1984 and 1991 Industry Real Estate
Holdings as a Percent of Market Value of Stock

Industry Group	SIC Code	1991 RE/ Rank	1991 RE/ Value	1984 RE/ Rank	1984 RE/ Value	'84-'91 Growth
1991 Market Value in excess of \$80,000 billion						
PAPER AND ALLIED PRODUCTS	2600	1	35.03%	2	48.47%	-4.53%
GENERAL MERCHANDISE STORES	5300	2	29.46%	3	37.14%	-3.26%
TRANSPORTATION EQUIPMENT	3700	3	23.08%	1	48.57%	-10.08%
INDL, COMM, MACHY, COMPUTER EQ	3500	4	15.19%	10	12.81%	2.47%
ELECTR, OTH ELEC EQ, EX CMP	3600	5	10.55%	6	21.72%	-9.80%
MEAS INSTR; PHOTO GDS; MATCHES	3800	6	10.49%	8	17.95%	-7.38%
CHEMICALS & ALLIED PRODUCTS	2800	7	10.34%	4	26.72%	-12.68%
FOOD AND KINDRED PRODUCTS	2000	8	7.93%	5	24.74%	-15.01%
BUSINESS SERVICES	7300	9	7.82%	9	14.83%	-8.73%
COMMUNICATIONS	4800	10	3.57%	11	8.96%	-12.32%
ELECTRIC, GAS, SANITARY SERV	4900	11	2.39%	13	0.81%	16.71%
PETE REFINING & RELATED INDS	2900	12	0.59%	7	21.70%	-40.18%
INSURANCE CARRIERS	6300	13	0.04%	12	1.51%	-41.38%
DEPOSITORY INSTITUTIONS	6000	14	0.00%	14	0.10%	-44.83%
1991 Market Value between \$10,000 and \$80,000 billion						
EATING AND DRINKING PLACES	5800	1	82.13%	4	65.22%	3.35%
PRIMARY METAL INDUSTRIES	3300	2	67.94%	1	103.34%	-5.81%
AMUSEMENT & RECREATION SVCS	7900	3	54.81%	2	87.31%	-6.44%
FOOD STORES	5400	4	54.75%	3	65.38%	-2.50%
STONE, CLAY, GLASS, CONCRETE PD	3200	5	42.40%	5	60.73%	-5.00%
HEALTH SERVICES	8000	6	42.33%	6	53.70%	-3.34%
BLDG MATL, HARDWR, GARDEN-RETL	5200	7	19.85%	7	31.02%	-6.18%
MISCELLANEOUS RETAIL	5900	8	17.38%	15	16.66%	0.60%
FABR METAL, EX MACHY, TRANS EQ	3400	9	17.22%	8	26.92%	-6.18%
NONDURABLE GOODS-WHOLESALE	5100	10	15.08%	14	17.06%	-1.75%
MOTION PICTURES	7800	11	13.95%	27	0.05%	121.61%
PRINTING, PUBLISHING & ALLIED	2700	12	13.50%	17	11.56%	2.23%
RUBBER & MISC PLASTICS PRODS	3000	13	13.36%	12	21.27%	-6.43%
APPAREL AND ACCESSORY STORES	5600	14	12.75%	10	23.28%	-8.24%
TRANSPORTATION BY AIR	4500	15	9.55%	11	22.36%	-11.44%
ENGR, ACC, RESH, MGMT, REL SVCS	8700	16	9.12%	22	3.77%	13.45%
TOBACCO PRODUCTS	2100	17	6.41%	18	10.91%	-7.32%

MNG, QUARRY MONTML MINERALS	1400	18	6.13%	13	20.49%	-15.84%
MISC MANUFACTURING INDUSTRIES	3900	19	5.57%	16	14.11%	-12.44%
DURABLE GOODS-WHOLESALE	5000	20	5.14%	20	8.92%	-7.56%
APPAREL & OTHER FINISHED PDS	2300	21	4.55%	19	9.88%	-10.48%
INS AGENTS,BROKERS & SERVICE	6400	22	2.08%	26	0.25%	35.72%
OIL AND GAS EXTRACTION	1300	23	1.42%	21	6.91%	-20.23%
HOLDING,OTHER INVEST OFFICES	6700	24	1.18%	24	2.48%	-10.06%
METAL MINING	1000	25	0.28%	25	0.69%	-11.91%
NONDEPOSITORY CREDIT INSTN	6100	26	0.10%	9	25.92%	-54.49%
SECURITY & COMMODITY BROKERS	6200	27	0.10%	23	3.55%	-39.62%
RAILROAD TRANSPORTATION	4000	28	0.06%	28	0.00%	56.95%
1991 Market Value less than \$10,000 billion						
SOCIAL SERVICES	8300	1	816.54%	6	31.40%	59.28%
AGRIC PROD-LVSTK,ANIMAL SPEC	200	2	150.22%	23	0.02%	268.55%
HOTELS, OTHER LODGING PLACES	7000	3	134.10%	2	75.13%	8.63%
MOTOR FREIGHT TRANS, WAREHOUS	4200	4	69.14%	4	56.10%	3.03%
AUTO REPAIR,SERVICES,PARKING	7500	5	55.52%	7	28.91%	9.77%
REAL ESTATE RELATED	6500	6	43.29%	11	22.15%	10.04%
AGRICULTURE PRODUCTION-CROPS	100	7	37.05%	1	889.15%	-36.49%
LUMBER AND WOOD PDS, EX FURN	2400	8	36.21%	9	27.95%	3.77%
TEXTILE MILL PRODUCTS	2200	9	32.46%	5	46.09%	-4.89%
AUTO DEALERS, GAS STATIONS	5500	10	27.87%	12	19.76%	5.04%
COAL MINING	1200	11	27.81%	3	56.90%	-9.72%
WATER TRANSPORTATION	4400	12	22.59%	10	26.18%	-2.08%
TRANSPORTATION SERVICES	4700	13	21.13%	19	7.85%	15.20%
FURNITURE AND FIXTURES	2500	14	20.60%	13	18.79%	1.32%
HOME FURNITURE & EQUIP STORE	5700	15	18.54%	8	28.74%	-6.07%
HEAVY CONSTR-NOT BLDG CONSTR	1600	16	10.27%	16	15.54%	-5.75%
EDUCATIONAL SERVICES	8200	17	10.09%	18	10.38%	-0.40%
BLDG CNSTR-GEN CONTR,OP BLDR	1500	18	9.69%	15	16.23%	-7.38%
CONSTRUCTION-SPECIAL TRADE	1700	19	7.35%	21	1.17%	29.97%
MISC REPAIR SERVICES	7600	20	7.07%	20	2.46%	16.25%
AGRICULTURAL SERVICES	700	21	7.06%	22	0.05%	103.80%
LEATHER AND LEATHER PRODUCTS	3100	22	3.57%	17	13.06%	-16.93%
PERSONAL SERVICES	7200	23	3.34%	14	16.84%	-20.62%

Note: Market value of stock is the closing price per share times the number of shares outstanding at fiscal year end.

Source: Compustat Data

of market value of stock in the largest market value category are Paper and Allied Products (SIC 2600), General Merchandise Stores (SIC 5300), Transportation Equipment (SIC 3700), Industrial, Commercial Machinery, and Computer Equipment (SIC 3500), and Electrical and Other Electrical Equipment, Excluding CMP (SIC 3600). Three of the top five 1984 industry groups by real estate holdings as a percent of market value in the largest market value category were also in the top five 1991 industry groups in Exhibit 3. The remaining two of the top five 1984 industry groups fell to seventh and eighth place in the corresponding 1991 rankings. Industry growth rates in real estate as a percent of market value for the 1984–1991 period in the largest market value category shown in Exhibit 3 were 85.7% negative, and 14.3% positive but less than 16%.

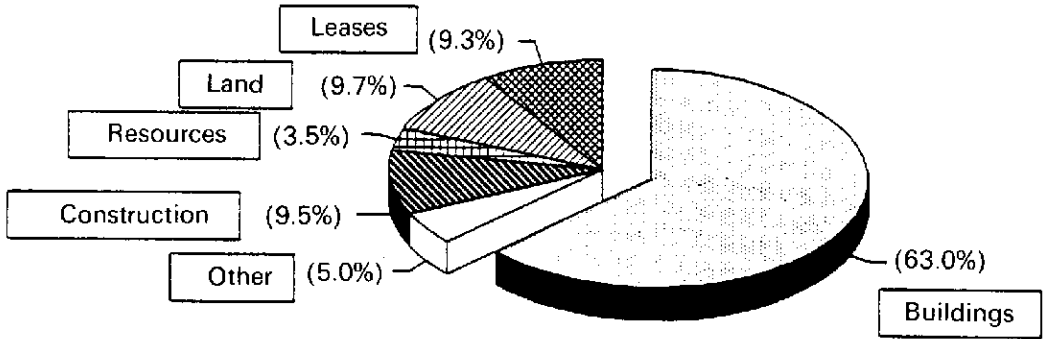
In the middle market value category of Exhibit 3, the top five ranked 1991 industry groups are Eating and Drinking Places (SIC 5800), Primary Metal Industries (SIC 3300), Amusement and Recreation Services (SIC 7900), Food Stores (SIC 5400), and Stone, Clay, Glass, and Concrete (SIC 3200). All five of the top five 1984 industry groups in this same market value category of Exhibit 3 were in the corresponding 1991 top five, with only a slight shift in rank order. 1984–1991 growth rates in real estate as a percent of market value of the firms in each industry group for the middle market value category of Exhibit 3 were 75% negative, 11% positive and less than 4%, and 14% positive and greater than 13%. Some disparity between the 1991 and 1984 top ranked industry groups in each market value category of Exhibit 3 is to be expected, however, due to the highly variable nature of stock market values over time.

Of additional interest in Exhibit 3 is the 1991 rank order of the Real Estate Related industry group for lessors and developers (SIC 6500) and the Holding and Other Investment Offices group (SIC 6700) which contains REITs. The former falls in the smallest market value category in Exhibit 3 with a rank of 6 out of twenty-three industry groups similarly classified. The latter is in the middle market value category in Exhibit 3 and has a low rank of 24 out of twenty-eight industry groups similarly classified.

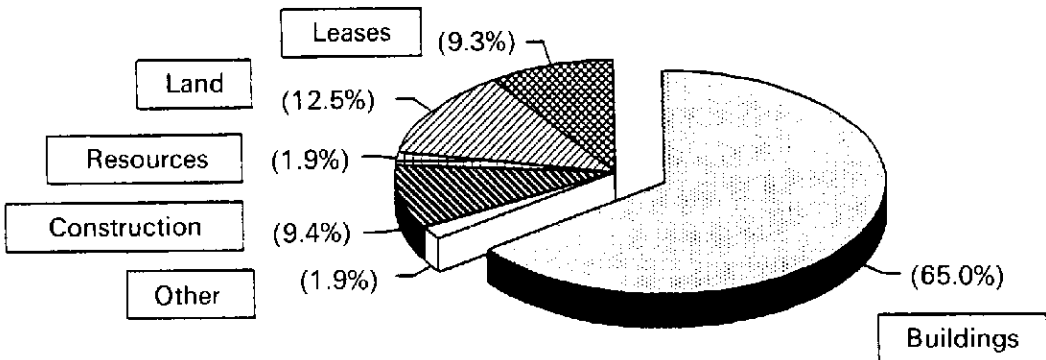
Real Estate Holdings by Asset Subtype

To further study corporate real estate holdings, an analysis by asset subtype based on gross cost is presented. Exhibits 4 and 5 are pie chart graphs that depict 1984 and 1991 relative concentrations for all sixty-five industry groups in buildings, construction in progress, land, leases, natural resources, and other.¹³ A comparison of the two charts identifies approximately the same relative corporate industry concentrations in real estate by asset subtype in 1984 and 1991. 1991 building concentration increased slightly over the 1984 concentration. 1991 land concentration is larger than in 1984, but its lease and construction in progress percentage weights remain about the same as 1984. 1991 percentage weights in both natural resources and the other category decline from 1984 relative weights. As can be seen from the 1991 chart in Exhibit 5, buildings represent the largest corporate real estate holding with \$339,783.2 billion owned or 65.0% of the total invested in all real estate asset subtypes. The second largest 1991 aggregate concentration is in land, with \$65,054.03 billion invested or 12.5% of all real estate asset balance sheet holdings at cost. The third and fourth

**Exhibit 4
Comparative Size of Holdings by Asset Subtype (1984)**



**Exhibit 5
Comparative Size of Holdings by Asset Subtype (1991)**



categories of real estate holdings by asset subtype differ only slightly. 1991 lease holdings total \$48,801.23 billion or 9.3% of all real estate holdings, while construction in progress totals \$49,083.04 billion, which is 9.4% of all real estate holdings. The last two asset subtype categories are almost tied with natural resources at \$9,945.903 billion or 1.9% of the total, and other with \$9,802.802 billion, for a rounded 1.9% of all 1991 real estate balance sheet holdings at cost.

1991 Largest Industries by Asset Subtype

Exhibit 6 highlights the top ten 1991 industry groups in real estate balance sheet holdings at cost by asset subtype. Because the exhibit is self-explanatory, a detailed

Exhibit 6
Top Ten 1991 Industries by Asset Subtype

Industry Group	SIC Code	Holdings (\$ Billions)
RANK	BUILDINGS	
1	CHEMICALS & ALLIED PRODUCT	42,408.41
2	TRANSPORTATION EQUIPMENT	33,114.92
3	PRIMARY METAL INDUSTRIES	29,025.13
4	INDL, COMM MACHY, COMPUTER	28,524.33
5	FOOD AND KINDRED PRODUCTS	21,985.80
6	GENERAL MERCHANDISE STORES	21,783.56
7	PAPER AND ALLIED PRODUCTS	17,359.76
8	ELECTR, OTH ELEC EQ, EX CM	16,423.07
9	EATING, AND DRINKING PLACES	14,185.77
10	COMMUNICATIONS	11,817.11
	TOTAL-65 INDUSTRY GROUPS	339,783.20
	CONSTRUCTION	
1	CHEMICALS & ALLIED PRODUCT	16,523.99
2	TRANSPORTATION EQUIPMENT	6,019.84
3	PAPER AND ALLIED PRODUCTS	4,633.32
4	FOOD AND KINDRED PRODUCTS	4,251.88
5	PRIMARY METAL INDUSTRIES	4,090.83
6	MEAS INSTR; PHOTO GDS; WATCH	1,885.16
7	ELECTR, OTH ELEC EQ, EX CM	1,190.98
8	PRINTING, PUBLISHING & ALLI	844.32
9	COMMUNICATIONS	842.38
10	GENERAL MERCHANDISE STORES	49,083.04
	TOTAL-65 INDUSTRY GROUPS	
	LAND	
1	GENERAL MERCHANDISE STORES	6,982.16
2	CHEMICALS & ALLIED PRODUCT	6,311.09
3	TRANSPORTATION EQUIPMENT	5,315.39
4	ELECTRIC, GAS, SANITARY SE	5,258.05
5	EATING AND DRINKING PLACES	4,726.28
6	FOOD AND KINDRED PRODUCTS	3,885.49
7	INDL, COMM MACHY, COMPUTER	3,629.44
8	FOOD STORES	3,291.34

9 PAPER AND ALLIED PRODUCTS	2600	3,220.05
10 PRIMARY METAL INDUSTRIES	3300	2,333.85
TOTAL-65 INDUSTRY GROUPS		65,054.03
LEASES		
1 GENERAL MERCHANDISE STORES	5300	13,208.35
2 FOOD STORES	5400	7,550.23
3 TRANSPORTATION EQUIPMENT	3700	4,391.65
4 APPAREL AND ACCESSORY STOR	5600	3,609.68
5 EATING AND DRINKING PLACES	5800	2,066.79
6 MISCELLANEOUS RETAIL	5900	1,828.98
7 MOTOR FREIGHT TRANS, WAREHO	4200	1,430.81
8 TRANSPORTATION BY AIR	4500	1,339.14
9 INDL, COMML MACHY, COMPUTER	3500	1,293.27
10 FOOD AND KINDRED PRODUCTS	2000	1,247.98
TOTAL-65 INDUSTRY GROUPS		48,801.23
NATURAL RESOURCES		
1 PAPER AND ALLIED PRODUCTS	2600	6,433.14
2 PRIMARY METAL INDUSTRIES	3300	1,380.40
3 CHEMICALS & ALLIED PRODUCT	2800	824.37
4 LUMBER AND WOOD PDS, EX FU	2400	567.92
5 FOOD AND KINDRED PRODUCTS	2000	161.86
6 TRANSPORTATION EQUIPMENT	3700	117.74
7 MNG, QUARRY NONMTL MINERAL	1400	99.21
8 TRANSPORTATION SERVICES	4700	96.48
9 ELECTRIC, GAS, SANITARY SE	4900	87.26
10 AGRICULTURE PRODUCTION-CRO	100	61.96
TOTAL-65 INDUSTRY GROUPS		9,945.90
OTHER		
1 ELECTR, OTH ELEC EQ, EX CM	3600	2,816.62
2 CHEMICALS & ALLIED PRODUCT	2800	1,265.99
3 COMMUNICATIONS	4800	598.47
4 WATER TRANSPORTATION	4400	498.35
5 EATING AND DRINKING PLACES	5800	448.16
6 MOTION PICTURES	7800	433.32
7 GENERAL MERCHANDISE STORES	5300	398.61
8 PAPER AND ALLIED PRODUCTS	2600	393.61
9 TRANSPORTATION BY AIR	4500	348.62
10 REAL ESTATE RELATED	6500	301.86
TOTAL-65 INDUSTRY GROUPS		9,802.80

Source: Compustat Data

analysis of the top ten industry groups within each category is not reported. It should be noted, however, that there is substantial overlap between the industries identified in each category by name as well as by rank for each of the six real estate asset subtypes.

Time Trends by Asset Subtype and Total Real Estate Holdings

Additional understanding of corporate real estate holdings is obtained by examining trends over time in total holdings as well as in real estate asset subtypes. For the 1984–1991 period, this information is summarized in the area graph labeled as Exhibit 7. It plots all sixty-five industry group holdings in buildings, construction in progress, land, leases, natural resources, and other, as well as total real estate holdings in trillions of dollars, based on gross historical cost. As is evident in Exhibit 7, total real estate holdings as well as holdings for the four largest asset subtypes of buildings, land, leases, and construction in progress, have increased over time. The only periods in which a decline in total real estate holdings occurred, as shown in Exhibit 7, are 1987 and 1991.

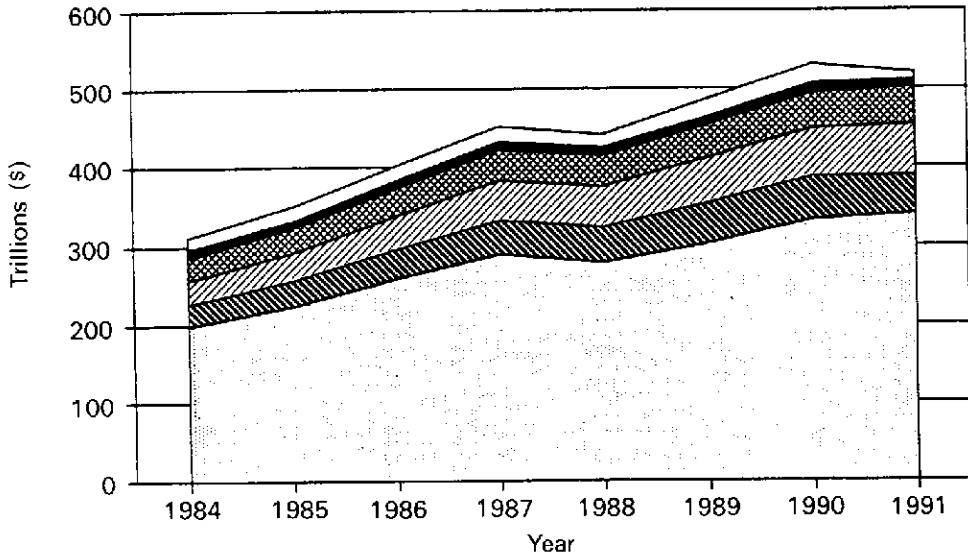
In all likelihood, the 1987 decline is associated with the effective date of the Tax Reform Act of 1986, which had catastrophic effects on real property values and dampened sales volume activity, especially for income properties held for investment or trade or business purposes. While only cost rather than market value data is examined in this article, a downward trend in corporate real estate holdings and real estate-related activity during 1987 would also be expected. During 1991, the general decline in real estate holdings appears to have only affected the other category. Smaller increases in the remaining asset subtype categories during 1991 are attributed to the recessionary characteristic of the U.S. economy during that time.

As is shown in Exhibit 7, annual compound building growth over the 1984–1991 period was 8.0%; construction in progress growth was 7.3%; land was 11.3%; and lease growth was 7.6%. Both natural resources and the other category had declining growth rates of -1.4% and -6.5% , respectively.

Summary and Conclusions

The purpose of this article is to provide additional foundation and background information for the study of corporate real estate. By analyzing balance sheet data on gross and depreciated cost of real estate corporate holdings, total assets, and stock market values from 1984–1991, the authors provide an in-depth analysis of the dollar magnitude and relative importance of corporate real estate by industry sector and asset subtype. Industry rankings based on gross dollar amount of real estate holdings, real estate as a percent of assets, and real estate as a percent of value of the firm are presented. Corporate concentrations in six real estate asset subtypes are also compared for 1984 and 1991, with the top industry groups ranked by holdings in each asset subtype. Overall 1984–1991 growth in total real estate holdings and asset subtypes is also examined. It is hoped that the information contained in this article contributes to further refinement of research and development efforts within the evolving field of corporate real estate.

Exhibit 7
Corporate Real Estate by Asset Subtype (1984–1991)



Buildings (8.0%)*	Construction (7.3%)*	Land (11.3%)*
Leases (7.6%)*	Resources (-1.4%)*	Other (-6.5%)*

*annual compound growth rates (1984–1991)
 Source: derived from Compustat Data

Notes

- ¹See, for example, Nourse (1990), Silverman (1987) and Dasso, Kinnard and Rabianski (1989).
- ²Two of these associations are the International Association of Corporate Real Estate Executives (NACORE), 440 Columbia Drive, Suite 100, West Palm Beach, FL 33409, and The Industrial Development Research Council, Inc. (IDRC), 40 Technology Park/Atlanta, Norcross, GA 30092-9934. IDRC's 1992 annual conference theme was "Corporate Real Estate 2000: Management Strategies for the Next Decade".
- ³Two special issues of *The Journal of Real Estate Research* have focused on corporate real estate, the current issue and 4:3 (Fall 1989).
- ⁴Exchanges included in Compustat are NYSE, ASE, OTC, REG, CAN, SUB, and OTH.
- ⁵Because these industry groups included some real estate holdings, they are ranked in the exhibits. However, due to their incomplete real estate data, the resulting rank order may be downwardly biased.
- ⁶As is apparent from the definitions for the "lease" and "other" categories, it is possible that non-real property items fall within the scope of these definitions. Because it is virtually impossible to isolate the non-real property components from these categories, they are offered as the best available proxy measure for the real property asset subtypes that are classified in these groups. With respect to the "lease" category, an examination of the data by industry

group leads the authors to believe that real estate leases represent the largest portion of the category. In the "other" category, the relative split between real property as compared to personal property holdings is indeterminate. However, as the "other" asset category represents such a small portion of total aggregate real estate holdings at cost, the deficiency is of minor significance.

⁷In 1991, the sixty-five industry groups with non-zero real estate holdings are extracted from seventy-one SIC industry groups with entries in the database, out of a potential universe of eighty-one SIC industry groups aggregated at the one hundred level. The database contains no entries for many SIC groups, such as SIC 8400 which represents museums, arboreta, zoo or botanical gardens, and art galleries. Apparently no firms in this or other missing SIC categories in the database are publicly traded.

⁸Gross cost figures, rather than depreciated or net figures, were used in this part of the analysis.

⁹Because total assets contain depreciated real estate holdings rather than gross or full historical cost holdings, the numerator amount used for aggregate real estate holdings in this section of the analysis is aggregate depreciated real estate holdings, rather than gross holdings at historical cost which is used in Exhibit 1.

¹⁰Stratification based on asset size was necessary because extreme high and low total asset amounts affect rank order of RE/TA.

¹¹For this part of the analysis, aggregate real estate holdings are valued at gross, rather than net depreciated cost. Market value of the firms within each industry is estimated using number of shares outstanding at fiscal year end times the closing market price per share at fiscal year end. The authors recognize the inconsistency of using historical cost as a numerator with stock market value as a denominator in the analysis. This weakness, however, cannot be cured due to the unavailability of market value as opposed to cost data on the real estate holdings.

¹²Stratification based on market value size was necessary because extreme high and low market value amounts affect rank order of RE/VALUE.

¹³For example, the building concentration of 63.0% in Exhibit 4 is obtained by dividing 1984 corporate holdings in the building asset category by all 1984 corporate holdings in real estate, i.e., \$198,700.9/\$315,193.2 billion.

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