

Does the REIT Stock Market Resemble the General Stock Market?

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Abstract. Gyourko and Keim (1993) point out that the continued growth of the Real Estate Investment Trust (REIT) market depends critically on the stock market's ability to provide fair and accurate valuations of real estate. Given the recent surge of REIT initial public offerings (more than \$15 billion in the 1993–1994 period), it is important to know whether the stock market provides the REIT market with the same level of information dissemination, monitoring activities and pricing mechanisms as that for other stocks. This study demonstrates that, when compared with the general stock market, REIT stocks tend to have a smaller turnover ratio, a lower level of institutional investor participation, and are followed by fewer security analysts. Furthermore, the level of financial analysts coverage and stock turnover intensity are higher when the REIT stock market is "hot". The lack of attention from financial analysts and institutional investors in the REIT stock market may have some implications for the well-documented anomalous REIT stock performance.

Introduction

The organizational structure and the financial performance of REITs (real estate investment trusts) have been examined extensively. Because of the unique tax rules required for REITs to maintain tax-exempt status, research on REITs potentially provides more insight into issues related to corporate mergers, dividend policy, capital structure, agency problems, and real estate returns. Among the studies that use REITs, one of the most common (and perhaps the most interesting) observations is that REIT stocks behave differently from the stock market in general.

Allen and Sirmans' (1987) study is the first to use the unique characteristics of REITs to examine corporate finance issues. They find that, in corporate mergers, acquiring REITs experience significant wealth increases, while acquiring industrial firms do not. Howe and Shilling (1988) report a significant positive stock market response to REIT debt offering announcements, while the market responds differently to debt offerings by industrial firms. Wang et al. (1992) document that, although industrial-firm IPOs are on average underpriced (approximately 16.4%), REIT IPOs during the 1971–1988 period are significantly overpriced (the initial day return is equal to -2.82%).¹ Colwell and Park (1990) report a reverse-size effect for REIT returns in a significant number of months during the year. Although several reasons have been offered to explain these anomalies, the possibility that the REIT stock market is unique cannot be ruled out.²

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An examination of the share performance within the REIT industry provides further evidence that REIT stocks are unique. Hsieh and Sirmans (1991) find that captive REITs underperform non-captive REITs. Howe and Shilling (1990) report that the mean returns of REITs advised by mortgage bankers and individuals are significantly lower than those of REITs advised by syndicators and real estate companies. Damodaran and Liu (1993) observe that REIT insiders buy (and sell) when they receive favorable (or unfavorable) information about the trusts. Wang et al. (1995) document that REITs followed by fewer security analysts tend to perform worse than REITs followed by more financial analysts.

Although Gyourko and Keim (1993) document that the stock market impounds information about changes in real estate values faster than the product market which relies on property appraisals, other studies show that the REIT stock market differs from the general stock market in at least two areas: the degree of corporate control and the speed of information dissemination. It also seems plausible to argue that agency problems are particularly severe in the REIT industry (or, at least, for certain types of REITs). Wang et al. (1993) find that REITs often pay out higher dividends than required by the tax code. They argue that stockholders demand a high payout ratio because a high payout ratio will force REIT management to seek external funds (by issuing debt or equity securities in the open market) for their new investments. When a REIT seeks external funds from the capital market, the market will be forced to scrutinize management decisions and monitor the firm's performance.

The purpose of this study is to examine some of the market characteristics for REIT stocks. Specifically, this study will examine whether the stock market provides the same level of services (liquidity, information dissemination, pricing mechanism) for REIT stocks as it does for other stocks in the market. To analyze this issue, the stock turnover ratio, institutional holdings, and the financial analysts' following of REIT stocks in relation to the general stock market are examined.

The next section discusses the market microstructure variables to be examined. Section three examines the REIT stock turnover ratios. In order to isolate the impact of age and firm size, these ratios will be compared to those of a group of industrial firms matched by age and size. Section four compares the number of security analysts following REIT stocks with those following the stocks of firms in other industries. Section five analyzes the institutional holdings of REIT stocks. The last section contains the conclusions.

Proxy Variables for Market Microstructure

A popular sentiment on Wall Street is that "it takes volume to move prices". As pointed out by Bernstein (1987, p. 55), depth, breadth and resiliency are the basic requirements for good markets. Depth and breadth mean that there must be sufficient interest from both sellers and buyers for traders to be able to execute transactions for a large number of shares in a short period of time. Abundant empirical evidence documents that trading conveys information (see, for example, Blume et al., 1994) and that there is a positive association between trading volume and price changes (see, for example, Karpoff, 1987).³ In this study, stock turnover ratios are analyzed in order to determine whether the stock market provides the same level of depth and breadth for REIT stocks as it does for other stocks.

Academic research has previously documented that firms differ in the amount of

information available to their investors (see, for example, Beaver, 1968). Merton (1987) and Brennan and Hughes (1991) also suggest that investors will hold only those securities that they “know about” and investors will buy securities followed by their brokers/analysts. In their view, security analysts act as information intermediaries that affect investors’ holding decisions. When performing empirical studies, researchers often use the number of financial analysts as a proxy for the availability of information. For example, Best and Zhang (1993) use the number of financial analysts forecasting each firm’s earnings as a proxy for information asymmetry and Khoo et al. (1993) use the number of financial analysts as a proxy for a change in the level of information availability.⁴

Elton, Gruber and Rentzler (1989) report that investors of publicly offered commodity funds have little information about the true value of the funds. In other words, there are few analysts who pay attention to the financial performance of these funds. Given the similarity between a commodity fund and a real estate investment trust, it is quite possible that REIT investors also suffer from the same problem. In order to address this issue, the number of security analysts following REIT stocks is examined.

It is common to view institutional investors as being more informed than individual investors and less likely to be affected by “individual-investor sentiment” when making investment decisions (see, for example, Lee et al., 1991; Chen et al., 1993). Jensen (1993) proposes that it is important for a firm to have active investors in order to establish a well-functioning governance system (because of their ability to monitor management policy and correct management problems). Given the empirical evidence on the stock performance of captive REITs and the impact of REIT advisors on the performance of REIT stocks, it seems prudent to examine the monitoring ability of REIT investors. In order to do this, the composition of REIT investors is analyzed.

Stock Turnover Ratio

In order to examine REIT stock transaction intensity, the stock turnover ratios (defined as the number of shares traded in each year divided by the number of shares outstanding at the end of the year) for each of the 153 REITs listed on the 1992 Compustat industrial annual tapes during the 1973–1992 period were gathered. Then a group of matching companies for each REIT was identified.

Two criteria are used to select matching companies for each REIT: the size of the company must be within 10% of the size of the REIT, and the age of the matching company must be the same as that of the REIT. To estimate firm size, the closing stock price is multiplied by the number of shares outstanding at the end of the year. In order to identify the age of the REIT and the matching company, the year that Compustat begins to report information on that firm is used as the first year of operation (year 0). It should be noted that a REIT can have more than one matching firm. The number of matching firms for each REIT varies depending on how many firms on the Compustat tapes satisfy the selection criteria. For year 0, each REIT, on average, has twenty-one matching firms. The mean number of matching firms per REIT is quite stable (from nineteen to twenty-one) during the six-year period examined in this study.

First, REIT stock turnover ratios at year 0 are analyzed. From the 153 REITs listed on the 1992 annual Compustat tapes, fourteen REITs are deleted because nine REITs have missing information or have a turnover ratio greater than 1,000%, and five REITs have no matching companies that satisfy the two selection criteria. The final sample for year 0

consists of 139 REITs. The stock turnover ratios of REITs and their matching companies for the next five years are also calculated. Year 1 is defined as the year after Compustat begins to report information on a particular company (for both the REIT and the matching companies). The number of observations varies each year because not all REITs exist for more than six years, and some REITs have missing information in certain years.

Panel A of Exhibit 1 reports the mean, standard deviation, and median for the 139 sampled REITs classified by age (year 0 to year 5). Panel B reports similar information for the matching companies. It is evident that the average transaction intensity (using the turnover ratio as a proxy) of REITs is not as high as that of the other stocks in the market. From year 0 to year 5, the average stock turnover ratio of REITs is approximately 31% (with a range from 29% to 33%) while the turnover ratio of the matching firms is 66% (with a range from 56% to 77%). In all years, the median turnover ratio of REITs is smaller than the mean turnover ratio, indicating that the distribution is skewed to the right or that there are more REITs with below average turnover ratios.

Panel C of Exhibit 1 reports that the general stock market (using a group of matching firms as the proxy), on average, has a stock turnover ratio that is about 115% higher than that of REIT stocks. For every year examined, the matching firms have a mean turnover ratio that is significantly higher (ranges from 90% to 157%) than that of REITs. The difference in the turnover ratio is significant for all the six years examined (t -statistics range from 5.25 to 11.33). This evidence indicates that the transaction intensity of REIT stocks is significantly lower than that of the general stock market.

It is possible that investors hold equity REITs as a substitute for ownership in real property. This suggests that the turnover ratio of equity REITs should be much lower than that of mortgage REITs.⁵ To investigate this possibility, the sample is separated by type of asset: equity REITs, mortgage REITs and hybrid REITs. The REIT type is identified using various publications of NAREIT Inc. From 1985 to 1992 (the period with more observations), the mean stock turnover ratio of mortgage REITs is slightly (approximately 15%) higher than that of equity REITs. This difference, however, is not significantly different from zero for the period examined.

In order to ascertain whether REIT stock turnover ratios vary during the twenty years examined, the turnover ratios of the 139 REITs are clustered by calendar year. The number of REITs varies for each year because some REITs do not have turnover information for every year and some REITs were established in later years. Exhibit 2 reports the mean and standard deviation of the REIT turnover ratio for each year during the 1973–1992 period. Except for the 1973–1978 period (exhibiting lower turnover intensity) and the 1985–1987 period (exhibiting higher turnover intensity), there is little variation in the ratios. Interestingly, the 1974–1977 period is a period with relatively low REIT IPO activity and the 1985–1987 period is a period with relatively high REIT IPO activity (see Wang, Chan and Gau, 1992).

To further analyze this issue, the REIT turnover ratio is regressed on the number of REIT initial offerings during the 1973–1992 period.⁶ We find a significant positive correlation between REIT transaction intensity and REIT IPO activity; the coefficient of the initial offerings variable is positive and significant (t -statistic=3.14). In addition, to control for the time factor, an additional year variable (1973 takes a value of 1 and 1992 takes a value of 20) is included in the equation. The coefficients of both variables (number of initial offerings and year) are positive and significant. Thus, even after adjusting for

Exhibit 1
Annual Stock Turnover Ratios* of 139 REITs and Their Matching Firms in the 1973–1992 Period Using Data Derived from 1992 Compustat Annual Tapes^a

Period	Year 0 ^b	Year 1 ^c	Year +2	Year +3	Year +4	Year +5	Average
Panel A: Sample REITs							
Mean	.294	.298	.290	.308	.330	.324	.307
Standard deviation	.531	.218	.192	.223	.243	.218	.271
Median	.183	.222	.228	.244	.267	.272	.236
Maximum	5.903	1.258	1.063	1.170	1.431	1.096	1.987
Minimum	.001	.010	.005	.017	.011	.041	.014
No. of observations	139	131	113	111	99	88	114
Panel B: Matching Sample Firm Groups^d							
Mean	.562	.766	.684	.694	.626	.624	.659
Standard deviation	.281	.418	.414	.409	.349	.337	.368
Median	.511	.717	.655	.595	.567	.535	.597
Maximum	1.456	1.837	2.835	2.367	2.133	1.627	2.043
Minimum	.151	.107	.108	.116	.151	.126	.127
Average number of matching firms per REIT ^e	21	20	20	19	19	20	20
Panel C: Test-Statistics of the Difference in Means							
Difference in means	.268	.199	.395	.386	.296	.301	.307
Percentage difference ^f	.91	1.57	1.36	1.25	.90	.93	1.15
T-statistic ^g	5.25	11.33	9.16	8.68	6.89	6.99	

*defined as the number of shares transacted divided by the number of shares outstanding

^aFourteen REITs were deleted from the original 153 REITs listed on the Compustat tapes because 1) the turnover ratio is greater than ten and 2) there is no matching company, given our selection criteria, or there is inadequate information to compute the turnover ratio.

^bYear 0 is defined as the first year the turnover ratio can be obtained from the Compustat tapes.

^cYear 1 is defined as the second year the turnover ratio can be obtained from the Compustat tapes.

^dTo qualify as a matching firm, the company must meet two criteria: 1) Compustat must begin to report the company's turnover information in the same year as the REIT, 2) the size (market value of equity) of the company in that particular year must be within plus or minus 10% of the size of the REIT.

^eA REIT can have more than one matching firm. The number of matching firms varies depending on how many firms satisfy the selection criteria.

^fDefined as the mean turnover ratio of matching firms divided by the mean turnover ratio of REITs minus 1.

^gAll are significant at the 1% level.

the time trend, REITs tend to have a higher turnover intensity when the REIT initial offerings market is "hot".

It should be noted that although the turnover ratio of REIT stocks is, in general, an increasing function of time, the evidence reported in Exhibit 1 indicates that the transaction intensity of REIT stocks is significantly lower than that of the general stock market regardless of the year examined. Given this, it would seem that, when compared with the general stock market, less price information may be generated for REIT stocks due to the relatively low transaction intensity.

Exhibit 2
Annual Stock Turnover Ratios* Categorized by Year for 139 REITs in the
1973–1992 Period Using Data Derived from 1992 Compustat Annual Tapes^a

Year	Mean Stock Turnover Ratio (%)	Standard Deviation of Stock Turnover Ratio (%)	Maximum Stock Turnover Ratio (%)	Minimum Stock Turnover Ratio (%)	Number of REITs in the Sample ^b
1992	29.44	24.08	143.10	.87	138
1991	25.97	22.51	117.01	.14	136
1990	27.00	16.01	87.61	.53	114
1989	31.12	17.77	77.63	.99	110
1988	26.65	17.25	85.78	.20	104
1987	39.68	24.47	125.83	1.00	92
1986	45.35	65.76	590.28	1.35	82
1985	35.45	23.00	106.31	1.61	55
1984	25.68	13.49	56.28	4.07	44
1983	29.99	15.10	77.30	8.95	41
1982	25.11	16.20	74.55	7.73	38
1981	23.34	11.89	60.52	4.77	36
1980	28.57	16.05	74.22	7.45	34
1979	28.88	19.37	85.48	9.76	32
1978	21.91	13.75	61.69	5.14	22
1977	21.63	14.07	60.98	5.92	22
1976	18.89	12.21	57.32	6.11	21
1975	18.52	14.83	54.17	3.16	21
1974	18.30	11.08	45.49	6.86	19
1973	18.82	11.30	42.35	1.91	18

*defined as the number of shares transacted divided by the number of shares outstanding

^aThese 139 REITs are the same as those reported in Exhibit 1.

^bThe number of REITs varies in each year because 1) some REITs do not have stock turnover ratio information for every year, and 2) some REITs are established in later years.

Number of Security Analysts

In order to analyze whether security analysts, on average, follow REIT stocks as closely as they do other stocks in the market, information on the number of security analysts following each stock (REITs as well as all other stocks available in the market) was gathered. First, a list of REITs and all other stocks from the 1992 Compustat annual industrial tapes was obtained. The tapes include the names and SIC codes for a total of 7,483 companies, from which 153 firms are classified as REITs. The 1992 Compustat annual tapes report firms' financial information for the 1973–1992 period.

The search for information provided by financial analysts is divided into two steps. The first step is to verify the period for which a firm is listed by the 1992 Compustat annual industrial tapes. This screening is necessary to examine a firm's financial analysts following over time. It should be noted that firms listed on the Compustat tapes could be de-listed or merged with other firms during the period examined. Inclusion of all periods (1973–1992) for those de-listed firms in the analysis could bias the result. To avoid this potential bias, a firm's financial analyst following is included only if Compustat reports the firm's information for that year.

For each firm listed on the Compustat tapes, the total assets (Compustat item #6) of each company are screened for every year during the 1976–1992 period.⁷ Only firms with

reported total assets for a particular year are included in the sample for that year. More firms meet this criterion in the later period (approximately 7,200 and 6,600 firms in 1991 and 1992, respectively) than in the initial period (approximately 2,460 and 2,530 in 1976 and 1977, respectively). During the 1976–1980 period, less than 43 REITs have information available on the Compustat tapes. In 1992, the number of REITs increased to 146.

The second step in the analysis is to obtain information provided by financial analysts for every year during the sample period for the firms identified in step one. To do this, data provided by the I/B/E/S/ tapes is examined. The I/B/E/S/ database reports regularly since 1975 the earnings estimates on selected companies that are of interest to institutional investors. Similar to the methodology used by Brennan and Hughes (1991), the number of financial analysts who make a one-year earnings forecast at the end of the year (the month of December) on a particular firm is used as a proxy for the financial analysts' attention.⁸ This information is gathered for every year for each company (both REITs and non-REITs) identified in step one.

Exhibit 3 reports the number of financial analysts following REITs and other stocks during the 1976–1992 period. Panel A shows that in 1992 approximately 77% of the REITs listed on Compustat are not followed by any security analyst. By comparison, only 52% of the other stocks listed on Compustat are not followed by any analyst. Except for the initial period (1976–1977), the spread of the percentages (such as 77% versus 52%) between the REIT industry and the general stock market is quite stable. In 1992, only one REIT (or .68% of the REITs) is followed by more than three financial analysts. By contrast, 27.45% of firms in the general stock market are followed by more than three financial analysts in that year. The result is similar when other years are used for comparison. Also notable is that the maximum number of security analysts following REIT stocks during the entire period is six (in 1989). For all other stocks, the maximum number of security analysts is fifty (also in 1989).

An analysis of the average number of financial analysts yields interesting results. For the REIT industry, the average number of financial analysts ranges from .15 to 1 during the 1976–1992 period. When compared with the general stock market, it is clear that considerably fewer financial analysts are interested in REIT stocks during the seventeen-year period examined.⁹ In 1992, the mean number of financial analysts following REIT stocks (mean=.38) is only 10.49% of the mean number of analysts in the general stock market (mean=3.59). The result is similar for the other sixteen years.

In terms of the number of financial analysts per REIT, more financial analysts followed REIT stocks in the 1984–1987 period than in other periods. However, the average number of financial analysts per firm for the general stock market is also relatively high during the same period. There seems to be a positive relationship between the average number of financial analysts in the REIT industry and in the general stock market.

In order to examine this possibility, the average number of financial analysts in the REIT industry was regressed on the average number of financial analysts in the general stock market. The coefficient is positive and significant (coefficient=.3493 and *t*-statistic=4.18). This finding underscores the need to isolate the general stock market movement when analyzing the trend in the REIT industry. In order to accomplish this, the average number of financial analysts following the REIT industry is divided by the average number of financial analysts following the general stock market. This intensity ratio serves as a proxy for the relative financial analyst attention to the REIT industry.

The last column of Exhibit 3 indicates that, on average, the number of financial

Exhibit 3
Average Number of Financial Analysts for the REIT Industry and for the
General Stock Market in the 1976–1992 Period

Year	REIT Industry ^a				All Other Firms				
	Average Number of Analysts	Number Of Observations ^b	% of Firms without Analysts	Maximum Number of Analysts	Average Number of Analysts	Number of Observations	% of Firms without Analysts	Maximum Number of Analysts	Intensity Ratio (%) ^c
Panel A: Sample Based on Compustat Annual Tapes									
1992	.38	146	76.7	5	3.59	6,436	51.9	43	10.49
1991	.40	145	75.9	4	3.12	7,063	58.9	41	12.81
1990	.45	139	70.5	4	3.22	6,602	58.9	43	14.08
1989	.65	136	67.6	6	3.53	6,139	57.2	50	18.34
1988	.50	129	67.6	4	3.51	5,791	57.5	48	14.14
1987	.78	115	65.2	5	3.38	5,491	58.2	44	23.19
1986	.88	92	66.3	5	3.49	5,106	59.8	40	25.23
1985	1.00	65	64.6	5	3.69	4,543	59.0	41	27.11
1984	.73	56	64.3	5	3.56	3,950	54.4	38	20.59
1983	.68	53	62.3	4	3.49	3,644	56.4	36	19.44
1982	.36	50	82.0	3	3.30	3,345	59.9	32	10.90
1981	.26	46	84.8	3	3.27	3,018	59.6	31	7.99
1980	.26	43	83.7	3	2.83	2,860	60.8	28	9.03
1979	.23	43	86.0	3	2.82	2,684	58.8	27	8.25
1978	.26	42	85.7	3	2.70	2,570	59.5	28	9.70
1977	.17	41	85.4	2	1.89	2,494	70.2	27	9.03
1976	.15	39	87.2	2	1.89	2,422	73.7	28	8.13
Panel B: Sample Based on Compustat Annual and Compustat Research Tapes^d									
1992	.38	146	76.7	5	3.59	6,452	51.9	47	10.50
1990	.43	145	71.7	4	3.11	7,089	59.8	45	13.98
1988	.45	150	69.4	4	3.10	7,281	60.9	48	14.60
1986	.70	128	71.9	5	2.91	7,459	63.7	40	23.89
1984	.54	94	72.3	5	2.78	6,704	60.6	38	19.50
1982	.31	108	84.3	4	2.40	6,378	67.1	32	12.73
1980	.23	120	86.7	3	1.92	6,005	69.8	28	11.70
1978	.23	120	86.7	3	1.70	5,995	70.0	28	13.25
1976	.12	115	91.3	3	1.05	6,056	82.7	29	11.56

^aThe firms listed on the Compustat annual and Compustat research tapes are used as the proxy for the firms in a particular industry. For each year, only firms with information on total assets are included in the sample. The number of financial analysts is obtained from the I/B/E/S/ tapes. For each year, only the analysts who provide a one-year earnings forecast at the end of the year (December) are used.

^bThe number of observations varies based on the availability of Compustat data.

^cThe intensity ratio is obtained by dividing the average number of REIT analysts by the average number of analysts in the general stock market.

^dIn the interest of saving space, only the result for every alternate year is reported.

analysts following the REIT industry ranges for approximately 7.99% (in 1981) to 25.23% (in 1988) of those following the general stock market. From an examination of this relative intensity measure, it is clear that more financial analysts followed the REIT industry during the 1983–1987 period. Khoo et al. (1993) report that, during their 1976–1989 sampling period, the number of financial analysts following equity REITs seems to increase dramatically after January 1, 1982, with a peak at the end of 1987 and

the beginning of 1988. The results of this study partially support their findings. Similar to Khoo et al. (1993), the results of this study indicate that the total number of financial analysts following REIT stocks increases over time. However, this study also indicates that the increase in the number of financial analysts is partially due to the increase in the number of REITs in the stock market. In other words, on a number of financial analysts per REIT basis, the increase is not a monotonically increasing function of time.

To analyze why more financial analysts pay more attention (on a per firm basis) to REIT stocks during the later period, two hypotheses are tested. First, it is hypothesized that the increase is due to the level of maturity in the market for REIT stocks. In other words, as the number of REITs in the market increases, more financial analysts pay attention to the industry. Second, it is hypothesized that financial analysts pay more attention to the REIT market when it is “hot”. As pointed out by Ritter (1984), the new issue market for equity securities appears to behave in cycles and there are times when the market is “hot” for the stocks of certain industries. The number of REITs available on the Compustat tapes and the number of years from 1975 (1976 takes a value of 1) are used as the two variables to proxy for the level of maturity in the REIT market. The number of REIT initial equity offerings is used as the proxy for a “hot” market. The number of REIT initial offerings during the 1976–1992 period is obtained from page 560 of the 1993 *REIT Handbook: The Complete Guide to the Real Estate Investment Trust Industry*.

The intensity variable (the mean number of REIT analysts divided by the mean number of stock market analysts) is first regressed on the year variable (1976 takes a value of 1 and 1992 takes a value of 17). A significant relationship is indicated. The coefficient is .5% and is significant (t -statistic=1.85). When the intensity variable is regressed on the number of REITs (a proxy for market maturity), the result is insignificant (t -statistic=1.06). However, when the intensity variable is regressed on the number of new REIT offerings (a proxy for a “hot” market), the coefficient (.6%) is highly significant (t -statistic=5.12). In order to analyze which variable is the dominant force, the intensity variable is regressed on all three independent variables (number of REITs, number of years, number of initial offerings). The results indicate that only the number of initial REIT offerings is significant (t -statistic=3.62). The coefficient of the year variable becomes insignificant (t -statistic=1.22). This finding indicates that financial analysts pay more attention to REIT stocks when the REIT new issue market is “hot”. However, there is no conclusive evidence that, on a per firm basis, more financial analysts follow REIT stocks over time.

Since the Compustat industrial annual tapes contain only surviving firms, the analysis might be biased because firms de-listed by the Compustat tapes normally experience dramatic events (such as merger, bankruptcy and liquidation). To ascertain whether the survivorship-only sample biases the results, the sample size is expanded to include firms listed on the Compustat research annual tapes. The two tapes combined provide a sample of 14,258 companies, from which 258 firms are classified as REITs. Panel B of Exhibit 3 shows that the result using the expanded sample does not differ much from the original finding.¹⁰ Although the average number of financial analysts in the REIT industry and in the general stock market are slightly lower than reported in Panel A, the qualitative conclusions (especially for the intensity ratio) are the same. This lower level of analysts’ attention is surprising. Given the dramatic events experienced by the de-listed firms, it would be expected that more financial analysts would follow those firms.

Exhibit 4 reports the average number of security analysts for each industrial group. The industrial classification is based on the three-digit SIC code and is nearly identical to the one used by Fama and French (1986). The only difference between Fama and French's classification and ours is the establishment of a new industry group for real estate-related companies. In order to identify real estate-related companies, the four-digit SIC code used by Gyourko and Keim (1992) and Glascock (1991) is used. In combination, these two studies identify firms with SIC codes 1521, 1541, 1542, 6162, 6552 and 6799 as real estate-related companies.

The observation that fewer financial analysts follow the REIT industry than follow other stocks in the general stock market still holds when the stocks are categorized by industrial groups. In 1992, all the other groups have an average number of security analysts that is significantly higher (means ranging from 1.32 to 7.62) than that of REITs (mean=.38). This pattern holds for every year during the period examined. The analysis based on industrial classification reinforces the finding that financial analysts pay less attention to REIT stocks. It is interesting to note that the average number of financial analysts following real estate companies also seems to be lower than that for other industries. In 1992, the average number of financial analysts for real estate-related companies is 1.32 while the mean for the stocks in general is 3.59. This pattern is similar for every year during the period examined. It should be noted that real estate companies are not trusts. They are operating companies just like other firms. Given this, it is a puzzle as to why there are fewer financial analysts following real estate companies. A more detailed analysis of this issue is needed. However, it appears that the stock market pays less attention to all real estate-related stocks (including both real estate companies and REITs).

Gyourko and Keim (1992) point out that many REITs are small capitalization issues. Figure 3 (p. 476) of their study shows that the median market capitalization value for equity REITs is smaller than the 50% fractile but significantly larger than the 20% fractile of the market capitalization distribution for all NYSE and AMEX firms. Given this, it is possible to argue that the smaller number of financial analysts following REITs could be due to the relatively smaller market capitalization of REITs. However, it should also be noted that the difference between the number of financial analysts following the REIT industry and other industries is quite large. In 1992, the average number of analysts for the REIT industry was .38, while the minimum average number of analysts for all other industries (excluding real estate companies) is 1.67. It is difficult to fully attribute such a large difference in the number of financial analysts to the fact that the average REIT capitalizations fall in the 20%–50% fractile range of all NYSE and AMEX stocks.

Percentage of Institutional Ownership

Spectrum 3: 13(f) Institutional Stock Holding Reports is used to obtain the percentage of institutional holdings for each REIT stock during the 1979–1990 period. *Spectrum 3: 13(f)* is a quarterly report published after 1975. The publication surveys the stock holdings of institutions (such as banks, insurance companies, investment companies, pension funds and foundations) with combined equity assets exceeding \$100 million. All NYSE and AMEX stocks, along with approximately 3,000 OTC stocks, are included in the report. For each quarter, the survey also reports the average percentage of institutional holdings of all the stocks in the market.

Exhibit 4
The Average Number of Financial Analysts Categorized by Year and by Industry Group for the 1976–1992 Period^a

Industry Group ^b	1992	1990	1988	1986	1984	1982	1980	1978	1976
REIT Industry	.38 (146)	.45 (139)	.50 (129)	.88 (92)	.73 (56)	.36 (50)	.26 (43)	.26 (42)	.15 (39)
Real Estate Co.	1.32 (133)	.90 (134)	1.09 (117)	1.29 (103)	.94 (77)	.84 (67)	.67 (58)	.80 (54)	.58 (50)
Food	4.30 (196)	4.25 (221)	4.30 (199)	4.09 (174)	4.30 (134)	4.26 (119)	3.44 (107)	3.05 (104)	2.21 (99)
Apparel	2.23 (143)	1.99 (144)	2.62 (122)	2.23 (110)	2.00 (86)	1.44 (81)	1.08 (76)	.91 (74)	.41 (73)
Drugs	4.03 (327)	3.62 (303)	4.18 (233)	3.95 (205)	4.94 (135)	4.74 (106)	5.32 (75)	5.92 (66)	5.09 (65)
Retail	4.39 (404)	3.51 (408)	4.18 (345)	4.13 (309)	3.99 (236)	3.38 (197)	3.09 (164)	2.54 (152)	1.95 (149)
Durables	2.32 (457)	2.02 (476)	2.19 (420)	2.30 (367)	2.48 (283)	2.26 (243)	1.81 (208)	1.74 (187)	1.34 (174)
Autos	3.71 (101)	3.46 (99)	3.60 (90)	3.76 (80)	2.99 (71)	3.05 (62)	3.85 (55)	3.04 (51)	2.12 (51)
Construction	2.78 (171)	2.55 (188)	2.92 (168)	3.10 (155)	3.02 (129)	3.03 (122)	2.84 (114)	2.50 (105)	1.61 (102)
Finance	4.92 (708)	4.24 (694)	4.57 (614)	4.25 (542)	3.82 (425)	3.77 (343)	3.28 (286)	3.17 (252)	1.86 (222)
Utilities	7.62 (312)	7.72 (317)	8.10 (292)	7.88 (270)	6.93 (237)	6.43 (229)	4.86 (219)	4.26 (216)	3.05 (196)
Transportation	3.80 (235)	4.06 (237)	4.71 (217)	5.17 (186)	5.22 (151)	4.88 (130)	3.49 (118)	3.13 (112)	1.87 (103)
Business Equip.	2.84 (1,109)	2.69 (1,122)	2.99 (990)	3.00 (893)	3.14 (726)	2.89 (599)	2.45 (487)	2.36 (408)	1.69 (391)
Chemicals	6.19 (117)	5.87 (113)	6.02 (101)	6.09 (86)	7.00 (69)	7.00 (62)	5.72 (60)	5.42 (59)	4.55 (55)
Metal Products	1.67 (54)	1.59 (58)	1.44 (50)	1.65 (46)	1.47 (38)	1.50 (36)	1.56 (34)	1.41 (32)	.73 (30)
Metal Industries	4.82 (97)	4.92 (105)	4.68 (94)	4.82 (79)	3.96 (69)	4.21 (61)	3.74 (61)	3.43 (60)	2.25 (60)
Mining	2.54 (137)	2.12 (162)	1.96 (158)	1.58 (130)	1.44 (71)	1.03 (61)	1.05 (55)	1.06 (47)	.42 (43)
Oil	3.72 (331)	3.18 (357)	3.27 (317)	3.32 (274)	3.73 (226)	3.72 (191)	3.66 (151)	4.38 (114)	3.37 (107)
Miscellaneous	2.86 (1,414)	2.36 (1,464)	2.57 (1,342)	2.60 (1,097)	2.82 (787)	2.27 (636)	1.89 (532)	1.76 (477)	1.17 (452)

The number of observations are reported in parentheses below average number of financial analysts

^aFirms listed on the Compustat annual tapes are used as the proxy for firms in a particular industry. For each year, only firms with information on total assets are included in the sample. The number of financial analysts is obtained from the I/B/E/S/ tapes. For each year, only the analysts who provide a one-year earnings forecast at the end of the year (December) are used.

^bThe industry definition follows Fama and French (1986). The only difference is that this study separates the REIT and real estate company groups from the finance industry. Real estate companies are firms with SIC codes 1521, 1541, 1542, 6162, 6552, and 6799.

Two criteria are used to select the sample. First, in order for a REIT to be included in the sample, the beginning trading day and the last trading day (if there is one) of the REIT stock must be known. Second, the REIT (with a non-zero institutional holding) must be surveyed by the *Spectrum 3: 13(f)* at least once during the sample period. These two criteria are used to eliminate the possibility of underestimating REIT institutional holdings. It should be noted that, when the *Spectrum 3: 13(f)* survey does not report the holding of a stock for a particular quarter, it could either be 1) that the institutional holding of the stock is zero, or 2) that the stock is not traded in the market at that time. This is why the initial trading day of the REITs needs to be known. It should also be noted that when the *Spectrum 3: 13(f)* survey does not report the institutional holdings of a stock, it could be because the stock is not included in the survey. In other words, it cannot be assumed that the holding is zero even if it was known that the stock was actively traded at a given time. This is why only REITs that have been surveyed by *Spectrum 3* at least once are included.

Based on these two criteria, the quarterly holding information for 100 REITs over the 1979–1990 period was obtained.¹¹ The quarterly holdings were then averaged to obtain the annual institutional holding percentage. Exhibit 5 reports the average institutional holdings for the REIT market, as well as for the general stock market. It is quite clear that the average institutional holdings of REIT stocks is much lower than that of other stocks. The average institutional holding for REIT stocks ranges from 6.66% to 16.16% during the 1979–1990 period. During the same period, the average institutional holding for all stocks ranges from 33.58% to 39.63%. On average, institutional investors hold more (approximately 3.81 times more) of other stocks than REIT stocks during the period examined.¹²

It is also clear that there is a growing institutional investor interest in REIT stocks: the average percentage of institutional holdings of REIT stocks increases from 6.66% in 1979 to 15.60% in 1990. The index (percentage of institutional holdings of other stocks divided by percentage of institutional holdings of REIT stocks) is lowest in the initial period (2.08 in 1980) and highest in the later period (5.08 in 1988). This ratio seems to be a monotonically increasing function of time. Next, the percentage of institutional holdings of REIT stocks was regressed on the number of years since 1979 (1979 is defined as 1 and 1990 is defined as 12), resulting in a highly significant coefficient (t -statistic=6.97).

It is interesting to note that the growth pattern of institutional holdings of REIT stocks differs from the growth patterns of the number of financial analysts following REIT stocks and the REIT turnover intensity. In previous sections, it was reported that REIT turnover intensity and the average number of analysts following REITs were highest during the 1984–1987 period (the “hot” market for REIT initial offerings). When the percentage of institutional holdings of REIT stocks was regressed on the number of REIT initial offerings, the result is insignificant (t -statistic=.85). Thus, in contrast to the findings on the financial analysts coverage and stock turnover intensity, there is no evidence to indicate that the “hot” issuance market affects institutional investors’ holding decisions on REIT stocks.

It should be noted that, even with a growing interest in REIT stocks, institutional investors still hold significantly fewer REIT stocks than other stocks in the market. The results indicate that, regardless of the year examined, institutional investors generally hold many more (at least twice as many) non-REIT stocks than REIT stocks. Based on this evidence, a logical conclusion is that institutional investors have less interest in

Exhibit 5
Percentage of 100 REIT Stocks Held by 13(f) Institutional Investors,
Categorized by Year, in the 1979–1990 Period^a

Year ^b	Mean Holding of REIT Stock (%)	Mean Holding of Total Stock Market (%) ^c	Standard Deviation of REIT Stock Holding (%)	Minimum Holding of REIT Stock (%)	Maximum Holding of REIT Stock (%)	Mean Market Holding Divided by Mean REIT Holding	Number of REITs in the Sample
1979	6.66	33.65	12.39	.00	50.75	5.05	33
1980	6.83	34.73	13.60	.00	60.50	5.08	37
1981	7.27	35.28	13.96	.00	71.50	4.85	40
1982	7.43	34.25	13.26	.00	58.75	4.61	44
1983	8.41	35.33	12.96	.00	54.75	4.20	46
1984	7.83	35.58	11.38	.00	45.75	4.54	50
1985	9.70	38.55	12.40	.00	47.25	3.97	67
1986	10.45	39.63	14.18	.00	80.00	3.79	87
1987	13.06	37.25	15.13	.00	77.00	2.85	100
1988	14.08	33.58	15.27	.00	76.00	2.38	100
1989	16.16	33.65	16.65	.00	77.25	2.08	100
1990	15.60	34.83	16.20	.00	78.00	2.23	100
Average	10.29	35.52	13.95	.00	64.79	3.81	67
Std Dev.	3.38	1.88	1.54	.00	12.60	1.08	27
Minimum	6.66	33.58	11.38	.00	45.75	2.08	33
Maximum	16.16	39.63	16.65	.00	80.00	5.08	100

^aThe 100 REITs in the sample are the REITs for which the initial public offering date can be identified and that have at least one 13(f) institutional investor in the 1979–1990 period. 13(f) institutions are institutions with combined equity assets exceeding \$100 billion and include banks, insurance companies, investment companies, investment advisors, pension funds, endowments, and foundations.

^b*Spectrum 3: 13(f) Institutional Stock Holding Survey* reports are available only after 1975 and there are few REIT initial public offerings in the 1975–1978 period. All NYSE and AMEX stocks, along with approximately 3,000 OTC stocks are included in the report.

^cas reported by *Spectrum 3: 13(f) Institutional Stock Holding Survey*

holding REIT stocks than other stocks in the market. Consequently, the REIT stock market does not seem to enjoy the same level of benefits (such as the pricing mechanism and monitoring ability) offered by institutional investors when compared to other stocks in the market.

Conclusions

Ever since Allen and Sirmans' (1987) finding that the stock market responds positively, not neutrally, to REIT announcements for acquisitions of other REITs, it has been puzzling why REIT stocks behave differently from the stocks of other industries. The question becomes increasingly important as researchers regularly document anomalous REIT stock market behavior. The purpose of this study is to build a foundation for further research on this issue.

The results indicate that the stock market does not provide the same level of services, such as information dissemination, monitoring activities and the pricing mechanism, for REIT stocks as it does for other stocks in the market. Specifically, it is observed that the

stock turnover ratio, the level of institutional holdings, and the financial analysts coverage are relatively low for REIT stocks when compared with other stocks in the stock market. These observations imply that the REIT stock market may not enjoy the full benefits of securitization as previously believed.

Researchers in the past have argued that REITs should not be viewed as “real estate” because their returns are more correlated with the broad stock market than with other known real estate indexes. (See Goetzmann and Ibbotson, 1990, for a review of this issue.) In other words, they believe that REIT stock price movements should follow the movements of the general stock market more than the movements of the underlying real estate values for the trusts. The evidence presented here seems to suggest that, because of the relatively low level of attention given them by the stock market, REITs may not be viewed as pure “stocks” either.

This study documents that REIT stock turnover intensity and their financial analysts following are higher when the REIT stock market is “hot”. There is also some evidence to indicate that the REIT stock market may be affected by the individual investor sentiment. These findings may help explain the well-documented empirical regularity on anomalous REIT stock behavior and agency issues in the REIT market. Research along this line of thought might provide some fruitful results that cannot be obtained from the use of equilibrium models that assume a highly efficient REIT stock market.

Notes

¹Even with this pricing anomaly, the REIT IPO market exploded in the 1993 and 1994 period. The total amount raised in these two years is more than \$15 billion, approximately 50% more than the amount raised over the previous twenty years (*Realty Stock Review*, December 1994, and the *1994 REIT Handbook*).

²On the other hand, Wang and Erickson (1994) report that the stock performance of real estate master limited partnerships (MLPs) seems comparable to that of the general stock market.

³Conversations with some practitioners in the field indicate that they believe some REIT stocks perform poorly because there is not enough transaction volume to support the stocks.

⁴Khoo et al. (1993) only examine the availability of the number of financial analysts of a group of equity REITs. Their analysis, however, does not shed light on the comparison between the REIT industry and other industries.

⁵We thank an anonymous reviewer for pointing out this possibility.

⁶The information on REIT initial offerings is obtained from page 560 of the *1993 REIT Handbook: The Complete Guide to the Real Estate Investment Trust Industry*.

⁷The 1973–1975 period is not examined because the I/B/E/S/ tapes begin to report financial analyst information in 1975.

⁸The result is virtually unchanged when the number of financial analysts that make forecasts at different months of the year is analyzed.

⁹This result supports Wang et al.’s (1994) finding. Using a one-year sampling period and the Dow Jones News Retrieval database interactively, they find that the average number of financial analysts following REITs is significantly lower than that following the general stock market.

¹⁰In the interest of saving space, only the results in every alternate year are reported. Results for other years are available from the authors.

¹¹*Spectrum 3: 13(f)* begins publication after 1975. The sample period for this study starts in 1979 because there were few REIT IPOs during the 1974–1978 period. The sample stops in 1990 because *Spectrum 3: 13(f)* is not available after that year.

¹²As discussed in the section on the number of security analysts, it seems difficult to argue that the large difference in institutional holdings can be fully attributed to the relatively smaller REIT market capitalization.

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