REIT Organizational Structure and Operating Characteristics

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Abstract   As a corporate organizational form, real estate investment trusts
                   (REITs) fall into two competing property management
                   structures: internally advised and externally advised. This study
                   tests the hypothesis that, due to their superior ability to resolve
                   conflicts of interests between REIT management and
                   shareholders, internally-advised REITs will dominate the
                   externally-advised REITs. We also test the hypothesis that larger
                   REITs will come to dominate the market and find support for
                   this hypothesis. The results confirm that externally-advised
                   REITs are responding to market pressure to conform to the
                   performance standards set by newer, internally-advised REITs.

Two competing organizational structures exist for REITs: internally advised and externally advised. As originally envisioned, REITs were to be passive investment vehicles much like mutual funds, except with trading restrictions. As a result, REITs had to retain 'advisors' who carried out functions similar to mutual fund portfolio managers. These advisors selected properties and executed investment strategies for the REIT. However, unlike stock or bond portfolios, real estate assets require active management to lease, operate and finance the properties. Thus, REITs also engaged 'property managers' who were responsible for the operation of the property. In the late 1980s, several REITs recognized the inefficiencies and inherent conflicts of interest between these advisors/managers and the REIT shareholders resulting from fee structures that were not tied to REIT performance.[1]

This conflict between advisor/managers and REIT shareholders was a detriment to growth in the property sector. Without the ability to actively manage assets, traditional developers/operators risked losing control of their properties upon conversion to REIT status. In 1986, private letter rulings from the Internal Revenue Service allowed REITs to assume responsibility for selecting investment properties and managing assets, allowing them to obtain 'self-advised' and 'self-managed' status.[2] The importance of eliminating these conflicts was not widely recognized until after the Kimco REIT Initial Public Offering (IPO) in 1991. Thus, REITs present an interesting case where two competing organizational structures existed during a period of rapid growth.

The remarkable growth of REITs during the 1990s coincided with the creation of the internally-advised structure has caused some to hypothesize that the self-

advised/self-managed REIT will dominate the real estate property sector.[3] As an initial test of this hypothesis, we examine the financial and accounting differences between older, externally-advised REITs and the internally-advised REITs prevalent in the 1990s. We systematically examine the impact of differences in organization structure using standard accounting and financial measures of REIT growth prospects, revenue and expense ratios, profitability ratios and capital cost estimates.

A second related hypothesis proposed by Linneman (1997), which has received considerable attention in both the popular press and the scholarly literature, is that larger REITs enjoy significant advantages over smaller REITs with respect to economies of scale in revenues, expenses and capital. Thus, we also examine the impact of firm size on these financial and accounting performance measures to test for the presence of scale economies. Our results are consistent with Capozza and Seguin (2000) who find that, between 1985 and 1992, externally-advised REITs consistently under-perform internally-advised REITs due to higher financing expenses. By extending the analysis to REITs from 1990 to 1996, our analysis indicates that externally-advised REITs are responding to market pressures becoming more like the newer, internally-advised REITs.

Data

The data consists of 139 equity REITs trading on either the New York or American Stock Exchange between 1990 and 1996, with monthly returns available on the CRSP tapes and financial data available from SNL REIT Datasource. The Appendix provides greater detail on the sample construction. The sample is divided into two portfolios. The first portfolio consists of equity REITs that retain an outside advisor or property manager. This portfolio primarily represents old-style, externally-advised REITs operating as passive real estate investment vehicles. The second portfolio consists of all REITs that are self-advised and self-managed—the so-called new, internally-advised REITs. These new-style REITs are organized as fully integrated operating companies that actively manage their assets. It is important to note that REITs are an organizational/corporate structure and not an industry segment, as REITs are in many property sectors based on different market segments (i.e., residential, retail, office, hotel, etc.). Because property sector composition can distort the analysis of REITs, we analyze internally- and externally-advised REITs controlling for property sector effects (residential, retail, hotel, office/industrial, self-storage and healthcare).

REIT Corporate Structure

Exhibit 1 breaks down the subsamples by REIT structure and organizational form. By the end of 1997, 64% of the internally-advised REITs were organized as umbrella partnership REITs (UPREITs) versus only 31% of externally-advised

Exhibit 1 | REIT Operating Structure

Market Segment	Structure		Life		
	UPREIT	Trad.	Perpetual	Finite Life	Overall Total
Panel A: Externally-advised REITs					
Diversified	0	7	7	0	7
Healthcare	0	3	3	0	3
Industrial / Office	2	2	2	2	4
Residential	1	0	1	0	1
Retail	0	4	3	1	4
Self Storage	0	2	0	2	2
Specialty / Hotel	6	2	8	0	8
Total	9	20	24	5	29
Panel B: Internally-advised REITs					
Diversified	4	2	6	0	6
Healthcare	0	4	4	0	4
Industrial / Office	13	5	18	0	18
Residential	23	8	31	0	31
Retail	23	18	41	0	41
Self Storage	3	2	5	0	5
Specialty / Hotel	4	1	5	0	5
Total	70	40	110	0	110

REITs (all of which were converts). Across property sectors, with the exception of healthcare, the majority of internally-advised REITs for all property categories are UPREITs. The preponderance of externally-advised REITs converting to UPREIT status are in the specialty/hotel property sector. Interestingly, the UPREIT structure dominates the residential, specialty/hotel and industrial/office property sectors. Not surprisingly, these property sectors are rapidly consolidating (through mergers and property acquisition), with the UPREITs utilizing their tax efficient ''currency'' to purchase assets from private partnerships. The large number of externally-advised specialty/hotel REITs that converted to UPREIT status highlights the pressure facing externally-advised REITs to compete with the internally-advised REITs.

All internally-advised REITs are infinite life REITs, whereas 21% of externally-advised REITs are finite life REITs. This underscores the distinction between the

operating company (where equity is infinite lived) and investment manager (''you can only have my money for so long'') philosophies of these entities. Interestingly, externally-advised REITs do not differ greatly from internally-advised REITs in the degree of property category concentration (Exhibit 2).[4] In fact, 72% of internally-advised REITs and 84% of externally-advised REITs are focused on a single property type (greater than 75% of assets concentrated in one property type).[5]

REIT Growth Prospects

Between 1991 and 1996, externally-advised REIT total equity market capitalization increased at a compound annual rate of 21.5% (from $6.1 billion to $19.5 billion).[6] At the same time, 93 internally-advised REITs appeared with total equity market capitalization increasing at an astonishing annual compound rate of 71% (from 9 REITs with a total equity market capitalization of $4 billion, to 102 REITs with a total equity market capitalization of $102 billion). This dramatic growth in internally-advised REIT equity market capitalization is a function of both new REIT IPOs, as well as the conversion of externally-advised REITs. For example, between 1991 and 1996, Security Capital Pacific Trust's total equity capitalization grew at a 54% annual growth rate (from $132 million to $1.7 billion), while Starwood Hotels and Resort's (formerly Hotel Investors Trust) equity market capitalization increased at an incredible 155% per year (from $5 million to $1.5 billion) over the same period. However, the dramatic growth in total REIT equity market capitalization hides the fact that externally-advised REITs have grown at a faster rate than internally-advised REITs. The average internally-advised REIT equity market capitalization grew at a 14% annual rate between 1991 and 1996 (from $447 million to $1 billion) while average equity market capitalization for externally-advised REITs grew at a 20% annual rate (from $189 million to $557 million).

The difference in equity market capitalization growth rates does not appear to be due to greater use of debt financing on the part of externally-advised REITs. Between 1994 and 1996, the average ratio of debt to total market capitalization remained relatively constant, and equal, for both groups at 35% to 37%. In fact, the leverage ratio for externally-advised REITs has declined from 49% in 1990 to 34% in 1993 while it remained relatively constant for internally-advised REITs during the same period.

While the leverage ratios of externally-advised and internally-advised REITs have converged, externally-advised REITs utilize more short-term debt (as a percentage of total capitalization) while internally-advised REITs utilize more long-term debt. Between 1993 and 1996, externally-advised REITs had almost twice the level of short-term debt (5%–8% for externally-advised REITs versus 2%–3% for internally-advised REITs). However, following the lead of internally-advised REITs, the percentage of short-term debt utilized by externally-advised REITs has

Exhibit 2 | Ownership Concentration

Market Segment	< 100% Concentration		100% Concentration		< 75% Concentration		75% Concentration	
	Externally-advised	Internally-advised	Externally-advised	Internally-advised	Externally-advised	Internally-advised	Externally-advised	Internally-advised
Diversified	2	3	1	1	2	3	3	1
Healthcare	0	0	2	4	0	0	2	4
Industrial / Office	1	8	1	4	0	3	1	8
Residential	0	10	2	17	0	3	2	24
Retail	1	23	1	8	0	14	0	14
Self Storage	1	0	1	4	0	0	2	4
Specialty / Hotel	0	2	1	2	0	1	1	7
Total	5	46	8	40	2	24	11	62

Note: Forty REITs had missing or incomplete property segment concentration information.

consistently declined while the percentage of long-term debt has consistently increased.

Capozza and Seguin (2000) note that between 1985 and 1992, externally-advised REITs consistently used more debt relative to internally-advised REITs and that this debt usage was the driving force behind their underperformance relative to internally-advised REITs. Thus, the shift in leverage ratios for externally-advised REITs is consistent with the hypothesis that externally-advised REITs have altered their operating characteristics to remain competitive with internally-advised REITs.

Most internally-advised REITs are aggressively pursuing growth strategies via acquisitions and, more recently, development. One measure of the success of this strategy is the value of the properties purchased. The implied capitalization rate (NOI divided by average total equity market value) provides a rough proxy for the pricing of REIT assets—particularly for hotels and residential properties, which do not have long-term leases. Exhibit 3 reports the mean implied capitalization rate by property sector. We expect to find lower implied capitalization rates for the more efficient internally-advised REITs. Regression analysis (Exhibit 4) confirms that the implied cap rates for internally-advised REITs were significantly lower than externally-advised REITs in 1990 and 1993, indicating that the market places a premium on the management talent of internally-advised REITs. Across property segments, self-storage REITs have the highest implied capitalization rates while diversified REITs have the lowest implied cap rates with residential properties having the lowest implied capitalization rates of actual property types. The significant F-Statistic indicates that we can reject the null hypothesis that the property sector coefficients are equal. We include the log of the market capitalization as a measure of firm size to test the hypothesis that the market values larger REITs because of their growth focus and greater liquidity. The results show a significantly negative coefficient for the quadratic effect of firm size indicating a non-linear relationship between the implied capitalization rate and firm size (market capitalization). Based on this regression coefficient, we calculate that the maximum ($\partial Y / \partial X = 0$) implied capitalization rate of 7.3% occurs for small REITs with market capitalizations of $13 million. Thus, as argued by Linneman (1997), we find that the overall implied capitalization rate declines by approximately 7 basis points per billion dollar increase in market capitalization, a strong value generating scale effect.

REIT Revenue and Expenses

One of the driving forces behind the consolidation in the real estate industry is the belief that the internally-advised REITs, as operating companies, are able to improve profit margins by controlling expenses. Linneman (1997) argues that firms having even a small cost advantage in a highly competitive, commodity type industry are at a distinct long-term competitive advantage. Thus, to the extent that

| | REIT Growth Prospects | REIT Revenue and Expenses | | | REIT Profitability | |
| | Implied Cap Rate | NOI/Revenues | Rental Rev/Revenues | G&A Exp/Revenues | ROE | Payout Ration |
Variable	Mean	Mean	Mean	Mean	Mean	Mean
Diversified	8.729	50.639	80.703	0.157	2.655	74.318
	(2.583)	(25.618)	(25.904)	(0.246)	(17.448)	(29.372)
Healthcare	9.618	99.944	86.881	0.052	11.375	88.175
	(1.907)	(0.232)	(7.853)	(0.023)	(4.797)	(17.996)
Industrial	8.966	72.951	95.732	0.058	5.156	69.500
	(1.401)	(11.724)	(4.225)	(0.029)	(5.941)	(31.187)
Office	10.276	63.171	92.732	0.066	2.789	66.550
	(3.401)	(6.704)	(7.733)	(0.068)	(10.781)	(44.902)
Residential	8.564	61.268	94.417	0.078	9.067	82.974
	(1.711)	(9.475)	(7.294)	(0.166)	(6.831)	(29.755)
Retail	9.382	71.273	87.139	0.073	7.312	83.234
	(1.943)	(11.636)	(21.677)	(0.157)	(58.703)	(37.810)
Self-Storage	11.208	62.233	96.267	0.042	7.880	79.724
	(4.403)	(6.021)	(3.403)	(0.018)	(2.007)	(21.351)
Hotel	9.875	77.889	93.917	−0.076	−5.750	81.750
	(2.213)	(28.402)	(5.261)	(0.842)	(28.799)	(68.170)

Note: Standard deviations are in parentheses.

Exhibit 4 | Regression Analysis of the Impact of REIT Size (log of market capitalization, LMKTCAP)

Controlling for Industry, Year and Structure (SASM) Effects

	REIT Growth Prospects		REIT Expense and Revenue						REIT Profitability Measures			
	Implied Cap Rate		Rental Rev / Revenues		G&A Exp / Revenues		NOI / Revenues		ROE		Payout Ratio	
Variable	Coef.	t-Stat.	Coef.	t-Stat.	Coef.	t-Stat.	Coef.	t-Stat.	Coef.	t-Stat.	Coef.	t-Stat.
Log(mktcap)	0.77	1.3	11.80***	3.1	−1.8E-2	−0.3	13.48***	3.9	2.32	0.2	−10.32	−1.1
Log(mktcap)2	−0.15***	−2.9	−1.09***	−3.0	4.9E-4	0.1	−1.19***	−3.7	0.04	0.1	1.21	1.4
Hotel	11.08***	6.9	60.88***	5.7	−1.2E-3	0.0	39.92***	4.2	−23.01	−0.9	104.79***	4.1
Diversified	9.00***	5.9	50.26***	4.9	1.5E-1	1.1	14.50*	1.6	−10.35	−0.4	96.10***	3.8
Healthcare	11.11***	7.0	54.31***	5.1	1.4E-1	1.0	62.00***	6.6	−7.68	−0.3	112.15***	4.4
Industrial	10.18***	6.6	61.99***	5.9	1.3E-1	0.9	35.07***	3.8	−13.29	−0.5	96.66***	3.8
Office	11.13***	7.2	60.17***	5.8	1.3E-1	1.0	26.16***	2.9	−15.28	−0.6	91.52***	3.7
Residential	9.96***	6.5	60.27***	5.9	1.2E-1	0.9	23.44***	2.6	−11.76	−0.5	110.08***	4.4
Retail	10.45***	6.8	53.04***	5.2	1.2E-1	0.9	33.34***	3.7	−12.34	−0.5	113.40***	4.5
Self Storage	11.71***	7.9	65.01***	6.4	1.0E-1	0.8	26.72***	3.0	−7.35	−0.3	101.27***	4.2
SASM*D90	−1.50**	−2.2	−1.94	−0.3	−4.7E-2	−0.6	−0.49	−0.1	5.30	0.4	6.29	0.5
SASM*D91	−0.58	−0.8	1.51	0.3	−4.3E-2	−0.6	−0.94	−0.2	2.84	0.2	3.00	0.2
SASM*D92	−0.69	−1.1	−1.83	−0.4	1.0E-2	0.2	−1.72	−0.4	2.03	0.2	−18.76*	−1.8
SASM*D93	−1.32**	−2.4	4.03	1.5	2.3E-2	0.7	−0.44	−0.2	4.71	0.5	−44.32***	−6.9
SASM*D94	−0.48	−1.4	5.46**	2.4	2.8E-2	0.9	1.36	0.7	17.22***	2.8	−15.18***	−2.9
SASM*D95	0.14	0.5	5.84***	2.7	3.0E-2	1.0	2.25	1.2	4.31	0.8	−5.75	−1.2
SASM*D96	0.03	0.1	6.14***	2.7	3.1E-2	1.0	2.60	1.3	3.64	0.7	−13.04***	−2.6
R^2	0.96		0.97		0.08		0.96		0.07		0.85	
F-Stat.	592.1***		1078.6***		2.84***		806.5***		2.11***		170.5***	
Equal Years	2.23**		0.87		0.33		0.44		0.98		6.65***	
Equal Ind.	7.07***		6.15***		1.95**		43.38***		0.55		3.13***	

Notes:
*** Significant at the 1% level.
** Significant at the 5% level.
* Significant at the 10% level.

internally-advised REITs have a cost advantage, they will eventually dominate their respective industry. The ratio of net operating income (NOI) to total rental revenue (gross income) is a useful proxy for firm profitability. Consistent with the large firm hypothesis, we find a statistically positive coefficient on firm size and a statistically negative coefficient for the quadratic size effect, indicating that firm profitability increases with firm size but at a decreasing rate (Exhibit 4). Sensitivity analysis (evaluating the regression equation at the data means) indicates that for every billion dollar increase in market capitalization, REIT profit margins will increase by approximately 9%. Sensitivity analysis also shows that REITs with market capitalizations of $285 million have the highest profit margin of 58.4%. Counter to the expectations, we find no significant relationship between REIT structure and profit margins. Thus, after controlling for property sector effects and firm size, it appears that REITs with internal management do not have an advantage over external REITs by investing in properties with higher profit margins.

Not surprisingly, significant differences in profit margins exist across property types. For example, internally-advised diversified REIT profit margins ranged from 67% to 75% between 1993 and 1996, while externally-advised diversified REIT profit margins were below 50%. Exhibit 3 reports that the average over the sample period was 50%. A similar pattern exists in the industrial and office sectors, with internally-advised REIT profit margins in excess of 75% and 65%, respectively, while externally-advised REIT profit margins are consistently lower. Again, the overall average profit margin for the sample was 63% for office properties and 73% for industrial properties (Exhibit 3). Interestingly, retail REIT profit margins are equal with neither corporate sector dominant and an average profit margin of 71%. On average, healthcare and hotel REITs have the highest profit margins, while diversified and residential REITs have the lowest profit margins, averaging 50% and 61%, respectively. The *F*-Statistic for the test of equality across property types is significant at the 1% level confirming our finding that profit margins do vary across industry groups.

One of the arguments supporting the advantage of the internally-advised REIT structure is that internal management will better control administrative expenses. For example, in 1992, externally-advised REIT General and Administrative (G&A) expenses as a percentage of total revenue averaged 14.4% while internally-advised REIT G&A expenses averaged just 4.8% of total revenue. By 1996, this gap had declined dramatically with externally-advised REIT G&A expenses averaging 6.1% compared with a 5.3% rate for internally-advised REITs. However, after controlling for firm size and property sector, we do not find any significant difference in the expense ratios of internally- and externally-advised REITs over time (Exhibit 4).

We also test for differences in expense ratios across property sectors. As expected, the *F*-Statistic for the hypothesis test of equal coefficients across property sectors is significant. We note that diversified REITs have the highest average G&A expense at 16% and self-storage REITs have the lowest at 4% (Exhibit 3).

However, the coefficient for firm size is not significant. This finding does not support the theory that larger REITs may be able to increase shareholder value by lowering expense ratios.

On the revenue side, a similar pattern emerges. Internally-advised REIT rental revenue (operating revenue) accounted for approximately 93% of total revenues. In 1993, rental revenue accounted for nearly 87% of externally-advised REIT total revenue. By 1996, the gap between externally-advised and internally-advised REITs had disappeared, with rental revenues accounting for approximately 92% to 93% of total revenue. Consistent with the sample means, between 1993 and 1996, we find that internally-advised REITs have a higher proportion of their total revenue resulting from rental operations.

Looking across property sectors, we find a significant difference in revenue ratios (Exhibit 3). The significant F-Statistic for equality of coefficients across property sectors indicates that we can reject the null hypothesis that revenue ratios are equal. Interestingly, we find that self-storage REITs have the highest ratio of rental income to total revenue while, not surprisingly, diversified REITs have the lowest ratio. Finally, supporting the firm size hypothesis, the significant coefficients on firm size suggest that larger firms derive more of their total revenue from rental income than smaller REITs. Sensitivity analysis indicates that every billion dollar increase in market capitalization implies an 8% increase in total revenue resulting from rental income and a corresponding 6% decline in revenue due to sales of assets. Given the non-linear relationship between firm size and revenues, we estimate the turning point (maximum) for the revenue ratio occurs when REITs hit $225 million in market capitalization with revenue ratios of 70.4%.

REIT Cash Flow and Profitability

Given the lack of difference in revenue and expenses between externally-advised and internally-advised REITs through 1996, it is not surprising that internally and externally-advised REITs had similar rates of profitability as measured by return on book equity (ROE).[7] With the exception of 1994, when internally-advised REITs had significantly higher ROE than externally-advised REITs, we find no significant difference in ROE for the two organizational forms. Furthermore, we find no significant difference in ROE across industry segments.

It is hypothesized that internally-advised REITs are more like industrial operating companies, and will—within the limits of REIT tax law—desire to retain a greater proportion of cash available for distribution (CAD) in order to take advantage of growth opportunities. With the exception of 1990 and 1991, we find that internally-advised REITs had significantly lower payout ratios (dividends as a percent of FFO) than externally-advised REITs. For example, in 1996 the average payout ratio for externally-advised REITs was 95% whereas internally-advised REITs had an 80% payout ratio. This supports the contention that internally-advised REITs are utilizing retained cash flow to support substantial asset

acquisition programs. Looking across property sectors, we also find significant differences in payout ratios, with office REITs having the lowest payout ratios while retail property REITs had the highest. The low payout ratios in the office and industrial property sectors are contributing to the consolidation taking place in these markets, where REITs are utilizing retained earnings to help fund their acquisition strategies. Interestingly, the coefficient on firm size is significantly positive indicating that, after controlling for property sector and organization effects, REIT payout ratios increase as firm size increases.

REIT Betas

Beta measures the systematic variation in returns relative to the market. To the extent that internally-advised REITs are different from externally-advised REITs, we expect to find significant differences in the factors impacting REIT systematic risk. We test this hypothesis by regressing individual REIT estimated betas on firm size and other financial factors (payout ratio, debt ratio, asset growth, FFO growth and implied capitalization rate), controlling for property market segment, and external/internal-advised REIT status interacted with time dummy variables.

Yearly REIT equity betas are estimated using the CAPM framework by regressing the previous twenty-four months REIT returns against the market index:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it}, \qquad (1)$$

where $R_{i,t}$ and $R_{m,t}$ represent the monthly returns for REIT i and the market portfolio in excess of the risk-free rate for the twenty-four prior months, α_i is the regression intercept, β_i is the estimated equity beta for REIT i and $\varepsilon_{i,t}$ is the standard error term. Thus, December 1993 betas are estimated by regressing the REIT returns less the risk-free rate against the CRSP value-weighted market index less the risk-free rate for the period from November 1991 to December 1993.[8]

We find that internally-advised REITs have significantly higher betas than externally-advised REITs (Exhibit 5) in 1995 and 1996. The positive coefficients on the interaction dummy variables *SASM*D95* and *SASM*D96*, which control for self-advised/self-managed REIT status in 1995 and 1996, indicate that internally-advised REITs have betas that are approximately 17 percentage points and 12 percentage points higher than externally-advised REITs, respectively. This reflects the market's perception of these firms as internally-advised (unproven) growth stocks. In other words, operating companies are viewed as riskier than asset holding companies since management is riskier. We also include variables controlling for financial factors such as firm size, capital structure and property type. The results indicate that firms with higher FFO and asset growth rates have lower betas. However, firms with higher payout ratios and greater leverage have higher betas. Interestingly, diversified and office market REITs have the highest

Exhibit 5 | Relationship between REIT Systematic Risk (β), WACC, ROC, EVA Spread and REIT Status

Parameter	Beta (β) Coef.	t-Stat.	WACC Coef.	t-Stat.	ROC Coef.	t-Stat.	Spread Coef.	t-Stat.
Log of Market Cap	−7.6E-02	−0.6	−3.4E-02***	−3.0	3.5E-02**	2.2	6.7E-02***	3.4
Squared Log of Market Cap	8.7E-03	0.8	2.9E-03***	2.9	−3.3E-03**	−2.3	−5.9E-03***	−3.4
Asset Growth (%)	−1.5E-03***	−2.9	−9.2E-05**	−2.1	−8.9E-05	−1.4	2.2E-05	0.3
FFO Growth (%)	−7.3E-04	−1.6	5.1E-05	0.9	1.5E-04*	1.9	1.2E-06	0.0
Implied Cap Rate (%)	1.7E-02	1.5	1.4E-03	1.4	−2.6E-03*	−1.7	−4.0E-03**	−2.2
Payout / FFO (%)	2.3E-03***	2.6	−6.0E-06	−0.1	−2.5E-05	−0.3	−2.3E-05	−0.2
Total Debt / Total Capitalization	6.5E-04	0.5	−2.3E-04**	−2.0	−6.1E-04***	−3.6	−2.7E-04	−1.3
Short-term Debt / Long-term Debt	4.6E-01**	2.0	3.7E-02**	2.0	−4.6E-02*	−1.7	−8.2E-02***	−2.5
Hotel	4.4E-01	1.2	2.0E-01***	5.7	3.3E-02	0.6	−1.8E-01***	−2.9
Diversified	5.7E-01	1.6	1.8E-01***	5.6	5.6E-02	1.2	−1.4E-01**	−2.4
Healthcare	5.1E-01	1.4	1.8E-01***	5.4	5.8E-02	1.2	−1.3E-01**	−2.2
Industrial	3.1E-01	0.9	1.8E-01***	5.4	3.2E-02	0.7	−1.5E-01***	−2.6
Office	6.9E-01*	2.0	1.9E-01***	6.1	1.4E-02	0.3	−1.8E-01***	−3.3
Residential	5.0E-01	1.4	1.7E-01***	5.4	2.9E-02	0.6	−1.5E-01***	−2.7
Retail	5.3E-01	1.5	1.8E-01***	5.5	3.7E-02	0.8	−1.5E-01***	−2.7
Self-Storage	4.2E-01	1.2	1.7E-01***	5.5	2.6E-02	0.6	−1.6E-01***	−2.9
SASM*D90	1.2E-01	0.8	1.9E-02*	1.8	2.4E-03	0.1	−2.3E-02	−1.1
SASM*D91	1.7E-01	1.1	3.5E-02***	3.0	−1.2E-02	−0.7	−3.6E-02*	−1.9
SASM*D92	1.0E-01	0.8	2.8E-03	0.3	−1.3E-02	−0.9	−9.9E-03	−0.6

Exhibit 5 | (continued)

Relationship between REIT Systematic Risk (β), WACC, ROC, EVA Spread and REIT Status

Parameter	Beta (β) Coef.	t-Stat.	WACC Coef.	t-Stat.	ROC Coef.	t-Stat.	Spread Coef.	t-Stat.
SASM*D93	−1.9E-01	−1.6	3.2E-02***	3.4	9.7E-04	0.1	−2.9E-02*	−1.8
SASM*D94	3.3E-02	0.5	−1.8E-02***	−2.5	−4.0E-03	−0.4	−9.4E-03	−0.7
SASM*D95	1.7E-01***	3.0	5.8E-03	1.2	−3.6E-05	0.0	5.1E-03	0.6
SASM*D96	1.2E-01**	2.2	−1.1E-02***	−2.3	−1.1E-03	−0.2	1.3E-02*	1.6
R^2		0.87		0.94		0.86		0.44
F-Stat.		90.9***		158.0***		56.9***		7.2***
H_0: SASM*D90 = ... = SASM*D96		1.86*		7.89***		0.23		2.40**
H_0: Hotel = ... = Self-Storage		2.50***		2.09**		3.53***		2.73***

Notes:
*** Significant at the 1% level.
** Significant at the 5% level.
* Significant at the 10% level.

betas followed by retail and healthcare segments. Industrial REITs have the lowest betas. Finally, we find no significant firm size impact.

REIT Capital Costs

As a final test of the difference between externally-advised and internally-advised REITs, we examine the weighted average cost of capital (WACC). Utilizing the betas estimated above, we calculate the WACC for each REIT as:

$$WACC = k_d \left(\frac{D}{TC} \right) + k_p \left(\frac{P}{TC} \right) + k_e \left(\frac{S}{TC} \right), \qquad (2)$$

where $TC = D + P + S$ and k_d, k_p and k_e are the cost of debt (D), preferred stock (P) and common stock (S), respectively. The cost of debt and preferred are estimated as the ratio of total interest cost to book value of debt and preferred dividends to book value of preferred stock, respectively. The cost of equity is estimated via CAPM.

As a further measure of REIT cost of capital, we also calculate each REIT's Economic Value Added (EVA®), where EVA is defined as net operating profit after taxes minus the capital charge.[9] Capital charge is found by multiplying each REIT's WACC by its capital employed. In essence, companies create shareholder wealth when after-tax profit is above the cost of capital (or positive EVA). The spread between return on capital (ROC) and WACC is an indicator of profitable investment activity. Positive and increasing spreads indicate a firm that is generating profits in excess of its cost of capital.

To test the hypothesis that internally-advised REITs are different from externally-advised REITs with respect to their cost of capital, we regress the individual REIT WACC, return on capital (ROC), and EVA spread on firm size and other financial factors (payout ratio, debt ratio, asset growth, FFO growth, and implied capitalization rate), controlling for property market segment, and externally-advised or internally advised status (Exhibit 5). We interact the advisor status variable with dummy variables for each year to pick up the impact of shifts over time associated with advisor status. Consistent with Linneman's (1997) theory on firm size, we find that firm size (as measured by the log of firm equity market capitalization) is statistically significant, confirming the hypothesis that larger firms have lower costs of capital. The regression coefficients indicate that a billion dollar increase in REIT market capitalization translates into approximately a 2.2% decline in WACC, a 2.3% increase in return on capital and a 4.3% increase in the EVA spread. Given the non-linear relationship implied by the quadratic effect, we calculate that the minimum WACC (8.4%) occurs for firms with market capitalizations of $340 million. However, we find the maximum return on capital (7.1%) occurs for firms with market capitalizations of $960 million. It is

interesting to note that REITs with higher implied capitalization rates have lower EVA spreads and returns on capital. The results also indicate that REITs with higher asset growth rates have lower WACCs and firms with higher FFO growth rates have higher return on capital ratios (ROC). Firms with higher debt ratios have a significantly lower cost of capital (as measured by WACC and ROC), but have higher risk. However, the return on capital (ROC) and EVA spread decline as the percentage of short-term debt increases, while WACC and REIT betas increase. These results confirm the notion that short-term debt is expensive and reduces profitable investments. The statistically significant negative coefficient for short-term debt percent indicates that investment prospects are harder to exploit due to limited borrowing capacity as short-term borrowing increases.

The hotel sector has the highest cost of capital followed by office REITs. Both diversified and healthcare REITs have similar costs of capital at 2.2 percentage points below the hotel property sector. However, it is interesting to note the relatively small variation in WACCs across property sector segments. Diversified and healthcare REITs have the highest return on capital ratios while office and self-storage REITs have the lowest return ratios.

Finally, we can reject the hypothesis that the estimated coefficients in the WACC model for internally-advised REITs are equal. The interaction variables indicate that REIT WACCs were larger for internally-advised REIT in the early 1990s. However, we cannot reject the hypothesis that internally- and externally-advised ROC ratios are different over time. Finally, the estimated coefficients indicate that internally-advised REITs EVA spreads are different over time with internally-advised REITs having higher spreads in 1995 and 1996. Again, this is consistent with the results found by Capozza and Seguin (2000) and indicates that internally-advised REITs continue to outperform externally-advised REITs.

Conclusion

During the early 1990s, a fundamental shift occurred in the real estate industry, which lead to the creation of many internally-advised REITs. This article documents the differences between externally-advised and internally-advised REITs and notes that the internally-advised REITs are rapidly dominating the real estate industry. Between 1991 and 1996, externally-advised REIT equity market capitalizations increased from $6 billion to $20 billion, while internally-advised REIT equity market capitalizations increased from $4 billion to over $102 billion. Our analysis confirms that externally-advised REITs are quickly transforming themselves to remain competitive with the internally-advised REITs.

In addition, we test the hypothesis that the structural form of internally-advised REITs is inherently superior to externally-advised REITs and thus will manifest in significant differences in operating performance. Evidence supporting this hypothesis is mixed. Using a dataset of 139 equity REITs, we examined differences between externally-advised and internally-advised REITs with respect

to operating structure, growth prospects, operating revenue and expenses, cash flow and profitability, equity returns, betas and capital costs. Regression results indicate that internally-advised REITs do have higher ratios of rental revenue to total revenue, lower payout ratios and lower costs of capital after 1993. However, we find no significant difference in return on capital (ROC), return on book equity (ROE) or profit margins between internally and externally-advised REITs. Thus, it appears that after controlling for firm size and property sector effects, any advantage enjoyed by internally-advised REITs is minor.

We also test Linneman's (1997) hypothesis that scale economies exist due to firm size. Regression results indicate that larger firms do have higher profit margins and rental revenue ratios and lower implied capitalization rates. However, we do not find a statistically significant relationship between firm size and expense ratios. Finally, examining the impact of firm size on REIT weighted average cost of capital, return on capital and EVA spread confirms the hypothesis that large REITs do enjoy an advantage in significantly lower costs of capital. Our results indicate that every billion dollar increase in market capitalization translates into a 2.2% reduction in capital costs.

Appendix

Externally- and Internally-advised REITs

Exhibit A-1 | Externally-advised REITs—Not Self-advised / Self-managed

	REIT	Ticker	Cusip	IPO Date
1	Alexander's, Inc.	ALX	014752109	Oct–86
2	American General Hospitality Inc.	AGT	025930108	Jul–96
3	American Health Properties, Inc.	AHE	026494104	Feb–87
4	American Real Estate Investment Corporation	REA	029166105	Nov–93
5	Boykin Lodging Company	BOY	103430104	Oct–96
6	EQK Realty Investors I	EKR	268820107	Mar–85
7	EastGroup Properties, Inc.	EGP	277270104	Dec–71
8	Equity Inns, Inc.	ENN	294703103	Feb–94
9	Franklin Select Realty Trust	FSN	354638108	Mar–89
10	HMG/Courtland Properties, Inc.	HMG	404232100	Sep–72
11	Health & Retirement Properties Trust	HRP	422169102	Dec–86
12	Hospitality Properties Trust	HPT	44106M102	Aug–95
13	Host Funding, Inc.	HFD	441072105	Apr–96
14	Income Opportunity Realty Investors, Inc.	IOT	452926108	Oct–86
15	Innkeepers USA Trust	KPA	4576J0104	Sep–94

Exhibit A-1 | (continued)

Externally-advised REITs—Not Self-advised / Self-managed

	REIT	Ticker	Cusip	IPO Date
16	Irvine Apartment Communities, Inc.	IAC	463606103	Dec−93
17	MGI Properties	MGI	552885105	Mar−72
18	Meridian Point Realty Trust VIII Co.	MPH	589954106	Oct−88
19	Public Storage Properties XI, Inc.	PSM	744609108	Mar−91
20	Public Storage Properties XX, Inc.	PSZ	744620105	Sep−91
21	RFS Hotel Investors, Inc.	RFS	74955J108	Aug−93
22	Realty ReFund Trust	RRF	756125100	Jul−72
23	Sizeler Property Investors, Inc.	SIZ	830137105	Feb−87
24	Sunstone Hotel Investors, Inc.	SSI	867933103	Aug−95
25	Transcontinental Realty Investors, Inc.	TCI	893617209	Feb−85
26	USP Real Estate Investment Trust	USPTS	903370104	Aug−88
27	Universal Health Realty Income Trust	UHT	91359E109	Jan−87
28	Value Property Trust	VLP	919904102	May−71
29	Washington Real Estate Investment Trust	WRE	939653101	Jun−61

Exhibit A-2 | Internally-advised REITs—Self-advised / Self-managed

	REIT	Ticker	Cusip	IPO Date	SASM Date
30	ASR Investments Corporation	ASR	001932201	Aug−87	Nov−96
31	Agree Realty Corporation	ADC	008492100	Apr−94	Apr−94
32	Alexander Haagen Properties, Inc.	ACH	40443E104	Dec−93	Dec−93
33	Ambassador Apartments, Inc.	AAH	02316A102	Aug−94	Aug−94
34	Amli Residential Properties Trust	AML	001735109	Feb−94	Feb−94
35	Apartment Investment and Management Company	AIV	03748R101	Jul−94	Jul−94
36	Arden Realty Inc.	ARI	039793104	Oct−96	Oct−96
37	Associated Estates Realty Corporation	AEC	045604105	Nov−93	Nov−93
38	Avalon Properties, Inc.	AVN	053469102	Nov−93	Nov−93
39	BRE Properties, Inc.	BRE	05564E109	Jul−70	Oct−95
40	Bay Apartment Communities, Inc.	BYA	072012107	Mar−94	Mar−94
41	Bedford Property Investors, Inc.	BED	076446301	Jan−85	Jul−92
42	Berkshire Realty Company, Inc.	BRI	084710102	Jun−91	Feb−97
43	Boddie−Noell Properties, Inc.	BNP	096903109	May−87	Oct−94
44	Burnham Pacific Properties, Inc.	BPP	12232C108	Mar−87	Dec−95
45	CBL & Associates Properties, Inc.	CBL	124830100	Oct−93	Oct−93

Exhibit A-2 | (continued)

Internally-advised REITs—Self-advised / Self-managed

	REIT	Ticker	Cusip	IPO Date	SASM Date
46	Camden Property Trust	CPT	133131102	Jul−93	Jul−93
47	Capstone Capital Corporation	CCT	14066R102	Jun−94	Jun−94
48	CenterPoint Properties Trust	CNT	151895109	Dec−93	Dec−93
49	Charles E. Smith Residential Realty, Inc.	SRW	832197107	Jun−94	Jun−94
50	Chelsea GCA Realty, Inc.	CCG	163262108	Oct−93	Oct−93
51	Colonial Properties Trust	CLP	195872106	Sep−93	Sep−93
52	Commercial Net Lease Realty, Inc.	NNN	202218103	Oct−84	May−97
53	Cousins Properties Incorporated	CUZ	222795106	Jan−97	Apr−87
54	Crescent Real Estate Equities Company	CEI	225756105	Apr−94	Apr−94
55	Crown American Realty Trust	CWN	228186102	Aug−93	Aug−93
56	Developers Diversified Realty Corporation	DDR	251591103	Feb−93	Feb−93
57	Duke Realty Investments, Inc.	DRE	264411505	Jan−86	Oct−93
58	Equity Residential Properties Trust	EQR	29476L107	Aug−93	Aug−93
59	Essex Property Trust, Inc.	ESS	297178105	Jun−94	Jun−94
60	Evans Withycombe Residential, Inc.	EWR	299212100	Aug−94	Aug−94
61	Excel Realty Trust, Inc.	XEL	30067R107	Aug−93	Aug−93
62	FAC Realty Trust, Inc.	FAC	301953105	Jun−93	Jun−93
63	Federal Realty Investment Trust	FRT	313747206	Jun−75	Jun−89
64	FelCor Suite Hotels, Inc.	FCH	314305103	Jul−94	Jul−94
65	First Industrial Realty Trust, Inc.	FR	32054K103	Jun−94	Jun−94
66	First Union Real Estate Equity and Mortgage In	FUR	337400105	May−70	Jan−94
67	First Washington Realty Trust, Inc.	FRW	337489504	Jun−94	Jun−94
68	Franchise Finance Corporation of America	FFA	351807102	Jun−94	Jun−94
69	Gables Residential Trust	GBP	362418105	Jan−94	Jan−94
70	General Growth Properties, Inc.	GGP	370021107	Apr−93	Apr−93
71	Glenborough Realty Trust Incorporated	GLB	37803P105	Dec−95	Dec−95
72	Glimcher Realty Trust	GRT	379302102	Jan−94	Jan−94
73	Grove Property Trust	GVE	399613108	Jun−94	Jun−94
74	HRE Properties, Inc.	HRE	404265100	Jul−69	Jan−86
75	Health Care Property Investors, Inc.	HCP	421915109	May−85	May−88
76	Healthcare Realty Trust, Inc.	HR	421946104	Jun−93	Jun−93
77	Highwoods Properties, Inc.	HIW	431284108	Jun−94	Jun−94
78	Home Properties of New York, Inc.	HME	437306103	Jul−94	Jul−94
79	Horizon Group, Inc.	HGI	44041X106	Nov−93	Nov−93

Exhibit A-2 | (continued)

Internally-advised REITs—Self-advised / Self-managed

	REIT	Ticker	Cusip	IPO Date	SASM Date
80	IRT Property Company	IRT	450058102	Apr−71	Jan−90
81	JDN Realty Corporation	JDN	465917102	Mar−94	Mar−94
82	JP Realty, Inc.	JPR	46624A106	Jan−94	Jan−94
83	Kilroy Realty Corporation	KRC	49427F108	Jan−97	Jan−97
84	Koger Equity, Inc.	KE	500228101	Aug−88	Dec−93
85	Kranzco Realty Trust	KRT	50076E107	Nov−92	Nov−92
86	Lexington Corporate Properties Trust	LXP	529039109	Oct−93	Aug−95
87	Liberty Property Trust	LRY	531172104	Jun−94	Jun−94
88	Macerich Company	MAC	554382101	Mar−94	Mar−94
89	Malan Realty Investors, Inc.	MAL	561063108	Jun−94	Jun−94
90	Manufactured Home Communities, Inc.	MHC	564682102	Mar−93	Mar−93
91	Mark Centers Trust	MCT	570382101	Jun−93	Jun−93
92	Meridian Industrial Trust, Inc.	MDN	589643105	Feb−96	Jun−5
93	Merry Land & Investment Company, Inc.	MRY	590438107	Apr−92	Apr−92
94	Mid-America Apartment Communities, Inc.	MAA	59522J103	Jan−94	Jan−94
95	Mid-America Realty Investments, Inc.	MDI	59522K100	Dec−86	Dec−86
96	Mid-Atlantic Realty Trust	MRR	595232109	Sep−93	Sep−93
97	Mills Corporation	MLS	601148109	Apr−94	Apr−94
98	National Golf Properties, Inc.	TEE	63623G109	Aug−93	Aug−93
99	Nationwide Health Properties, Inc.	NHP	638620104	Dec−85	Jun−88
100	New Plan Realty Trust	NPR	648059103	Jul−62	Aug−88
101	Oasis Residential, Inc.	OAS	674216106	Oct−93	Oct−93
102	One Liberty Properties, Inc.	OLP	682406103	Dec−82	Jan−95
103	Pacific Gulf Properties, Inc.	PAG	694396102	Feb−94	Feb−94
104	Parkway Properties, Inc.	PKY	70159Q104	Aug−96	Aug−96
105	Patriot American Hospitality, Inc.	PAH	703353102	Sep−95	Sep−95
106	Pennsylvania Real Estate Investment Trust	PEI	709102107	Jun−70	Sep−97
107	Post Properties, Inc.	PPS	737464107	Jul−93	Jul−93
108	Prentiss Properties Trust Inc.	PP	740706106	Oct−96	Oct−96
109	Price REIT, Inc.	RET	74147T105	Dec−91	Dec−91
110	Public Storage, Inc.	PSA	74460D109	Jul−80	Nov−95
111	Ramco-Gershenson Properties Trust	RPT	751452103	Dec−88	May−96
112	Realty Income Corporation	O	756109104	Oct−94	Aug−95
113	Reckson Associates Realty Corporation	RA	75621K106	May−95	May−95
114	Regency Realty Corporation	REG	758939102	Oct−93	Oct−93

Exhibit A-2 | (continued)

Internally-advised REITs—Self-advised / Self-managed

	REIT	Ticker	Cusip	IPO Date	SASM Date
115	Rouse Company	RSE	779273101	Nov−95	Nov−95
116	Saul Centers, Inc.	BFS	804395101	Aug−93	Aug−93
117	Security Capital Atlantic Incorporated	SCA	814137105	Oct−96	Sep−97
118	Security Capital Industrial Trust	SCN	814138103	Mar−94	Sep−97
119	Security Capital Pacific Trust	PTR	814141107	Jun−89	Sep−97
120	Shurgard Storage Centers, Inc.	SHU	82567D104	Mar−94	Mar−95
121	Sovran Self Storage, Inc.	SSS	84610H108	Jun−95	Jun−95
122	Spieker Properties, Inc.	SPK	848497103	Nov−93	Nov−93
123	Starwood Hotels & Resorts Trust	HOT	855905204	May−72	Jan−95
124	Storage Trust Realty	SEA	861909109	Nov−94	Nov−94
125	Storage USA, Inc.	SUS	861907103	Mar−94	Mar−94
126	Summit Properties, Inc.	SMT	866239106	Feb−94	Feb−94
127	Sun Communities, Inc.	SUI	866674104	Dec−93	Dec−93
128	Tanger Factory Outlet Centers, Inc.	SKT	875465106	May−93	May−93
129	Taubman Centers, Inc.	TCO	876664103	Nov−92	Nov−92
130	Town and Country Trust	TCT	892081100	Aug−93	Aug−93
131	TriNet Corporate Realty Trust, Inc.	TRI	896287109	May−93	May−93
132	United Dominion Realty Trust, Inc.	UDR	910197102	May−90	Dec−89
133	United Mobile Homes, Inc.	UMH	911024107	Dec−92	Dec−92
134	Urban Shopping Centers, Inc.	URB	917060105	Oct−93	Oct−93
135	Vornado Realty Trust	VNO	929042109	May−93	May−93
136	Walden Residential Properties, Inc.	WDN	931210108	Feb−94	Feb−94
137	Weeks Corporation	WKS	94856P102	Aug−94	Aug−94
138	Weingarten Realty Investors	WRI	948741103	Mar−88	Jan−93
139	Western Investment Real Estate Trust	WIR	958468100	Jun−84	May−87

Note: SASM Date is the date the REIT became self-advised / self-managed.

Endnotes

[1] The conflict of interest between REITs and outside advisors and management and the resulting impact on value is widely recognized. For example, Howe and Shilling (1990) examine the effect of advisor selection of financial performance while Hsieh and Sirmans (1991) and Wei, Hsieh and Sirmans (1995) examine the performance of REITs with close business relationships with their advisors. Sagalyn (1996) gives a general overview of the various conflicts of interest in the REIT structure.

[2] New Plan Realty Trust (NPR) claims to be the first REIT to convert in August 1988. However, several other REITs either had gone public as self-advised/self-managed as early as 1986 or were also working on converting at the same time.

[3] This hypothesis is formally presented in Linneman (1997).

[4] Data on percentage of ownership across property segments was obtained from the *1996 REIT Handbook*.

[5] REIT concentration is defined as the percentage of assets held in a single property type. Thus, REITs with greater than 75% concentration have more than 75% of their assets invested in one property type while REITs with less than 75% concentration are invested in several property types.

[6] Total market capitalization is defined as end of year total debt plus the market value of common stock (and partnership units) plus the value of preferred shares.

[7] Return on equity (ROE) is defined as net income as a percentage of average total equity (adjusted for operating units).

[8] The monthly risk-free rate is proxied using CRSP Government Bond Index for bonds less than twelve months to maturity.

[9] See Stewart (1991) or Walbert (1994).

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