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**The impact of dividend policy on institutional holdings:
hotel REITS and non-REIT hotel corporations**

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The impact of dividend policy on institutional holdings: hotel REITs and non-REIT hotel corporations

Abstract

Previous research (Canina, Advani, Greenman, & Palimeri, 2001) shows that dividend initiations and dividend increases result in higher stock returns. Although institutions need to hold stocks that pay high dividends because of the prudent-man rule, recent research (Grinstein & Michaely, 2005) contradicts this practice. Since hotel REITs and non-REIT hotel corporations belong to the same industry but have different dividend policies, it is worth examining the impact of dividend policy on institutional holdings. We find institutions tend to prefer REITs. We also find institutions prefer large firms that make capital expenditures, regardless of REIT status.

Keywords: institutional holdings, hotel REITs, dividend

The impact of dividend policy on institutional holdings: hotel REITs and non-REIT hotel corporations

Introduction and background

The purpose of this research is to assess whether or not different dividend payment policies between lodging real estate investment trusts (REITs) and lodging non-REIT corporations affect the motivations of institutional investors to hold their stock. As discussed by Beals and Arabia (1998) the REITs of the 1970s were primarily mortgage REITs, or those that would lend money to fund hotel projects. By the 1990s however, most were equity REITs that represent direct investment of lodging properties. This is still the most common REIT in the 21st century.

REITs came into being by an act of Congress in 1960 as a way to encourage the participation of small investors in real estate. One of the unique features of a REIT was the requirement that it must pay 95% of its net income in the form of dividends to shareholders. If this and certain other requirements are met, the REIT was (and still is) allowed to deduct these dividends thus avoiding the double taxation curse that occurs with corporations paying dividends. Based on information in Kim, Mattila and Gu (2002), the law was changed in 2001 such that REITs now only have to pay out 90% of their earnings as dividends, allowing more internal equity to fund future growth.

The focus of this research is on how dividend payments by REIT versus non-REIT lodging companies may or may not affect the attractiveness of these companies to institutional investors. According to Canina, Advani, Greenman and Palimeri (2001), the average U.S. corporation has a dividend payout ratio of approximately 50%. On the other hand, their research indicates non-REIT lodging firms only have a payout ratio of approximately 7%. Therefore, do institutional investors prefer lodging REITs that pay 90% of earnings as dividends or the stocks of non-REIT lodging firms that, on average, only pay 7%?

Comparing lodging REITs and lodging C-corporation provides an ideal setting for testing institutional preferences on dividend policy. Both stocks are located in the same industry but have different dividend policies. While a previous study (Grinstein & Michaely, 2005) did not find a positive relationship between dividend policy and institutional holdings, this may be due to an aggregated sample.

The potential answer to this research question begins with an examination of the agency theory and information asymmetry literature that is presented in the next section. After reviewing the literature, we discuss the data used and the methodology employed. We subsequently present our findings and conclusions and recommendations for further research.

Literature Review

Institutions have certain reasons for preferring dividend-paying stocks. One may be that dividends may provide more information about a firm, reducing the agency problem of information asymmetry for investors. Additionally, since institutions act as fiduciaries, they are governed by the prudent-man rule. The prudent-man rule is designed to protect beneficiaries by permitting them to seek damages from a fiduciary that fails to act in the better interest. Stocks with more stable earnings and dividends are considered to be prudent stocks (Del Guercio, 1996). A similar finding by Oak and Dalbor (2008) indicates that institutions consider high-priced stocks to be prudent investments as well.

The differing tax position of each institution also impacts the preference for a firm's dividend. Pension funds and university endowments may prefer dividend-paying stocks because of the comparative tax advantage of being tax-exempt institutions. However, since other institutions are taxed twice (both for the corporation and for individual owners on personal dividend income), they may not prefer dividend-paying stocks (Tong & Ning, 2004).

Research indicates that institutional shareholdings are increased over the 3- to 9-month period following the dividend initiation (Dhaliwal, Erickson & Trezevant, 1998). However, previous studies found that institutional holdings are not significantly related to payout ratios or dividend yields in REITs and other stocks (Ciochetti, Craft, & Shilling, 2002; Gompers & Metrick, 2001). Grinstein and Michael (2005) show that although institutions prefer dividend-paying firms to non-dividend-paying firms, they are attracted to those firms that pay fewer dividends. Jain (2005) also reports that institutional investors prefer low dividend-yield stocks across all sectors. These results are contrary to the agency cost and information asymmetry models along with the prudent-man rule. Previous studies did not find why institutional holdings do not have a positive relationship with dividend payments. Since hotel REITs and non-REITs hotel corporations belong to the same industry, comparing these two types of lodging companies provides a good opportunity to investigate the impact of dividend policy on institutional holdings.

There has also been research conducted as to the differential factors that may influence the investment behavior of institutions in REITs. Many of these factors relate to information that is available about the firms. Although some research indicates that institutions invest more in the REITs than in other matching firms (Chan, Leung & Wang, 1998), there is more than one possibility for this finding.

As an example, institutions prefer REITs with larger market capitalization and equity REITs than mortgage and hybrid REITs (Below, Stansell & Coffin, 2000). One reason for this may be that REITs with larger market capitalization (a proxy for size) have more information about them. Moreover, REITs with more growth potential (high market-to-book ratio) and lower dividend yields are preferred by institutions (Below, Stansell & Coffin, 2000).

Given the fixed asset-intensive nature of the hotel industry, growth opportunities in the industry are funded by capital expenditures (Dalbor and Upneja, 2004). Additionally, contrary to

the findings of much existing financial research regarding the relationship between growth and debt, Dalbor and Upneja (2004) find a *positive* relationship between growth opportunities and debt for the lodging industry (non-REIT). Overall, the interest in firms with growth opportunities is because institutional managers are simply seeking superior returns.

When “regular” investors consider stock returns, the dividend yield (a function of the dividend payout ratio) is often an important consideration in the total return of the stock. However, when REITs are considered, research findings show that the dividend payout ratio of REITs is negatively related to the return on total assets and growth rate of total assets (Wang, Erickson & Gau, 1993). However, they find that the dividend payout ratio of REITs is positively related to the debt-to-asset ratio.

Thus, if investors prefer firms with high dividend payout ratios, they prefer firms with high debt ratios as well. Previous studies (Canina, Advani, Greenman & Palimeri, 2001; Wang, Erickson & Gau, 1993) show that dividend initiations for both C-Corp and REITs increase stock returns. As dividend payments increase, institutional holdings increase. As companies increase their dividend payments, institutional investors increase their ownership of stocks in these companies. Investments by pension funds and bank trusts have a strong positive relationship with dividend payment of both lodging REIT and non-REIT lodging stocks.

Mooradian and Yang (2001) examine differing firm characteristics of hotel REITs and non-REIT hotel corporations. Non-REIT hotels have a significantly larger amount of free cash flow than their REIT counterparts before and after dividend distribution. Firms with more free cash flow are more likely to have agency problems. The market-to-book value ratio is significantly higher for hotel REITs that retain less free cash flow. Institutions will prefer hotel REITs that have less free cash flow and high market-to-book ratios.

Hypotheses

Based upon our review of the literature, we attempt to assess institutional holding behavior using the following research hypotheses.

Hypothesis 1: There is a difference in the number of lodging REITs versus non-REIT lodging stocks held by institutional investors.

Lodging REITs with high dividend payments will have more institutional investors than regular lodging corporations. By rule, lodging REIT firms must pay at least 90% of their earnings as dividends. This high payout ratio makes them more attractive to institutions largely because of the prudent man rule and the increased availability of information content provided by dividend payments.

Hypothesis 2: There is a significant and positive relationship between dividend payments and institutional investors' ownership of both lodging REIT and non-REIT lodging stocks.

As companies increase their dividend payments, institutional investors increase their ownership of stocks in these companies. Similar to research hypothesis number one above, institutions prefer dividend paying firms because of the prudent-man rule. As previously stated, studies by Canina, Advani, Greenman & Palimer (2001) and Wang, Erickson & Gau (1993) show that dividend initiations for both C-Corp and REITs increase stock returns. Furthermore, a study by Del Guercio (1996) indicates dividend-paying firms to be considered “prudent” investments.

Data and Methodology

Non-REIT hotel companies comprise 127 firms in the Compustat database with SIC code 7011 for the years 1980 to 2004. Hotel REITs comprise 22 firms with SIC code 6798 during the same period. The sample of hotel REITs is obtained from NAREIT (National Association of Real Estate Investment Trusts) which categorizes REITs by investment type (see Table 1).

****Insert Table 1 here****

Hotel REITs are mostly equity trusts that acquire property interests. A PMC commercial trust is the only hybrid trust that combines an equity trust and a mortgage trust (purchasing mortgage obligations).

Quarterly institutional holdings are from Thompson Financial Spectrum institutional filing 13(f) from 1980 to 2004. Quarterly institutional ownership is categorized into 5 groups: banks, insurance companies, mutual funds, brokerage firms and pension funds. This study restricts the institutional holdings sample to lodging non-REIT corporations and lodging REIT corporations found in the annual Compustat files in order to match firm characteristics.

Institutional holdings for a particular stock in the given quarter are determined by the percentage of institutional ownership (the share holdings of institutions divided by the total share outstanding for the firm). The dividend payout ratio is calculated using the annual dividends paid in the year divided by the book value of assets (Grinstein & Michaely, 2005).

The control variables in the regression models include size (total assets), book-to-market value, capital expenditures-to-asset ratio, debt, price and an excess returns variable. These variables are included to help alleviate confounding issues related to institutional ownership between REITs and non-REITS. Justification for their inclusion can be found in Oak and Dalbor (2008). They find that institutions prefer lodging stock of larger firms, and those with low book-to-market value ratios. Moreover, institutions prefer firms with high capital expenditure-to-assets ratios, high debt ratios and high stock prices. Finally, to understand the difference of institutional holdings between REITs and non-REITs stocks, a dummy variable for REITs is used (1= hotel REIT, 0 = non-REIT hotel corporation).

T-tests are used to measure differences in firm characteristics between non-REIT lodging corporations and lodging REIT corporations. Regression analysis is used to determine the

relationship between institutional holdings and dividend payout as measured by the dividend (Grinstein & Michaely, 2005). The following is the full model used for the regression analysis:

Institutional holdings = intercept + β_1 size + β_2 book-to-market ratio + β_3 capital expenditure-to-assets ratio + β_4 debt ratio + β_5 price + β_6 dividend to assets ratio + β_7 dummy REITs/non REITs + β_7 excess returns + error term of the regression.

Results

**** Insert Table 2 here ****

Table 2 shows descriptive statistics and results of t-tests for non-REIT and REIT firms. The results indicate that institutional holdings of hotel REITs are larger than non-REIT hotel firms. While institutional investors own, on average, 9% of lodging REIT stocks, they only own 6% of non-REIT lodging stocks. Hotel REITs have a higher mean dividend-to-assets ratio. This is seen in Table 2 where hotel REITs have a mean dividend-to-assets ratio of 4% and non-REITs have a dividend to assets ratio of only 2%. Because REITs maintain a policy of distributing at least 90% of income, hotel REITs have significantly larger dividend payout as a percentage of assets. Hotel REITs also have a higher average book-to-market ratio. Non-REIT hotel corporations have higher average size, debt ratio, capital expenditure-to-assets ratio and stock price.

We also examined the entire sample of firms by market capitalization. We divided both the REIT and non-REIT samples based on the quartiles of market capitalization. As the market capitalization increases, institutional holdings increase as shown in Panel B of Table 2. In every quartile, REITs have larger institutional holdings than non-REITs. In the first quartile, REITs have larger institutional holdings, debt ratio and dividend-to-assets than non-REITs. However, non-REITs are larger, have a higher book-to-market ratio, a higher capital expenditure-to assets ratio and higher prices than REITs. In the second quartile, REITs have larger institutional holdings, a higher debt ratio and a higher dividend-to-asset ratio than non-REITs. However,

similar to the first quartile, non-REITs have a larger capital expenditure-to-asset ratio, along with prices and excess returns.

In the third quartile of market capitalization, REITs have larger institutional holdings and are larger in size. Additionally, they have a higher debt ratio, dividend-to-assets ratio and excess returns than non-REITs. On the other hand, non-REITs have a larger capital expenditure-to-assets ratio and price than REITs. In the fourth quartile, REITs are significantly larger and have a higher debt ratio and dividend-to-assets ratio than non-REITs. On the other hand, non-REITs have a larger book-to-market and capital expenditure-to-asset ratio and a higher price than REITs.

It should also be noted that we examined differences in institutional holdings of hotel corporations that pay dividends and those that do not (these results are not shown but are available from the authors). Our statistical comparison revealed that the holdings in the two groups were not significantly different. Additionally, when we compared holdings in REITs that have a dividend payout of 90% versus those REITs that pay more, there was a significant difference at $\alpha = .05$. 54% of hotel corporations pay dividends. The amount of Hotel REITs that pay out more than 90% of their earnings as dividends is 72.8%. Thus, the percentage of hotel REITs that pay just 90% of earnings as dividends is 27.2%.

**** Insert Table 3 ****

Table 3 shows institutional holdings by the time period and types of institutions. During the 1990s, pension fund, mutual fund and brokerage firms increased their shares in the lodging firms.

**** Insert Table 4 ****

Table 4 is the correlation matrix of the variables of interest. The log of institutional holdings has a significantly positive relationship with all of the independent variables except for two. The book-to-market ratio is negatively related to the log of institutional holdings and the excess

returns are insignificant to the log of institutional holdings. Moreover, all of the correlations are highly significant.

**** Insert Table 5 ****

When all types of institutions are included in the first regression model, the REIT variable is positive and highly significant (model 1 in Table 5). This confirms the finding from the t tests that institutions prefer hotel REITs to non-REIT hotel firms. The dividend to assets ratio is not significant. This may be because each institution has a unique investment style and aggregate data may not show the institution subgroup's characteristics. Additionally, the log of institutional holdings is positively related to size, capital expenditure to asset, debt ratio and price. Excess returns are insignificant.

In the regression model using pension funds (model 6 in Table 5), the REIT dummy variable is positively related to institutional holdings. Hotel REITs have larger institutional holdings than non-REIT hotel companies. The dividend to assets ratio and capital expenditure-to-assets ratio are negatively related to institutional holdings. Grinstein and Michaely (2005) find that institutions prefer firms that pay dividends. However, among dividend paying firms they find that institutions prefer firms that pay fewer dividends. This may also be the case here with pension funds. Pension fund holdings are positively related to size, book-to-market ratio and debt ratio. Moreover, pension fund holdings are negatively related to capital expenditure to assets and price. The model indicates that the excess returns variable is insignificant.

In the regression model that uses mutual funds (model 4 in Table 5), institutional holdings are positively related to REITs and the dividend to assets ratio. According to the prudent man rule, mutual funds prefer dividend paying firms. In addition, mutual fund holdings are positively related to capital expenditure to assets, debt ratio and price. Mutual fund holdings are negatively related to the book-to-market ratio. Similar to the finding for mutual funds, excess returns are insignificant for pension funds.

The results indicate that bank holdings are positively related to REITs (model 2 in Table 5). In addition, bank holdings are positively related to size, capital expenditure to assets, debt and price. However, the book-to-market, dividend to assets and excess returns variables are not significantly related to institutional holdings.

Much like the results involving banks, the regression model involving insurance firms (model 3 in Table 5) indicates that their institutional holdings are positively related to REITs. Insurance firm holdings are positively related to size, capital expenditure to assets and the debt ratio. The book-to-market ratio is highly significant and negatively related to an insurance firm's holdings. Price and the dividend to assets do not appear to have an impact on the investment decision of insurance firms. A somewhat surprising finding is that, unlike other institutions, excess returns are negatively significant.

In the regression utilizing brokerage firms (model 5 in Table 5), institutional holdings are also positively related to REIT status. Brokerage firms prefer large firms, firms with low book-to-market ratios, high capital expenditures, more debt and a high price. The dividend payout ratio is positively significant while the excess returns variable is insignificant.

**** Insert Table 6 ****

Table 6 shows regression models for all instructions by time period. The first panel, which includes all years, shows that most of the variables are significant. The exceptions are the book-to-market ratio (significant at only 10%) and dividend to assets and excess returns which are insignificant.

The next panel shows the results for the early 1980s. Although the adjusted r-squared statistic has increased to over 19%, most of the variables are insignificant except for the debt ratio which is negatively significant. The next panel to the right indicates results for the rest of the 1980s and shows different results than the early 1980s. The adjusted r-squared statistic increases to 34% and now four of the seven independent variables are significant, including

excess returns. Perhaps the most interesting variable in this model is the debt ratio which is positively significant during this time period but was negatively significant during the preceding time period. The results may have been impacted by legislation such as the Tax Reform Act of 1986. However, since we did not have any specific a priori expectation regarding the sign or significance of these variables based upon time periods, we believe these findings would be a fruitful topic for further research.

The next panel to the right in the table shows results for the early 1990s. Once again, the majority of variables are significant, although the overall adjusted r-squared has declined. The dividend to asset ratio is now highly significant, but the debt ratio is now insignificant. This may be a result of changes in lending practices from the banking crisis of the late 1980s and early 1990s. The results for the late 1990s are very similar to those of the earlier part of the decade, except that the price variable is insignificant for this period. The final panel showing the first five years of the 21st century is very similar to the late 1990s. The only exception is that the dividend to asset ratio is significant, but the coefficient has a negative sign.

Conclusions and recommendations for additional research

The purpose of this paper was to assess whether or not institutional investors prefer the stocks of lodging corporations or the stocks of lodging REITs. We hypothesized that there would be differences in their preferences, primarily due to the dividend payment policies of the two types of firms. We find that institutional investors tend to prefer hotel REITs. We also find that there are significant differences between hotel corporations and hotel REITs in terms of size, book-to-market value ratios, capital expenditures, price and dividend payout ratios. Insurance firms have significant relation with excess returns, but other institutes do not have significant relation.

We then examine the preferences of institutional investors by individual investor type. We first examine all institutional investors together as a group and then subdivide the sample between banks, insurance companies, mutual funds, brokerage firms and pension funds. Most of the institutions have similar preferences with the variables of interest with the exception of pension funds. Most institutional holdings are negatively related to the book-to-market ratio; pension funds have a significant and positive relationship. A similar instance is the finding that most institutional holdings have a positive relationship with a firm's capital expenditure to assets, while pension funds prefer firms with smaller ratios of capital expenditure. The final difference is in regard to dividend payment policies. Mutual funds prefer high dividend-paying firms while pension funds are the opposite.

We also ran additional regression models for all institutions since 1980 delineated into 5-year time periods. The most interesting findings involved the debt and dividend-to-asset ratios. These two ratios changed significance and the signs of the coefficients dependent upon the time period of interest. As previously discussed, this may be as a result of legislation enacted during the past that affected lending practices or specific institutions. Further investigation as to the potential factors influencing institutional investor behavior during specific time periods could prove fruitful.

Our findings that show differences in investment behavior between mutual funds and pension funds may be because of the prudent man rule. This is another topic that warrants further investigation. This is particularly true since investment in the hospitality industry by pension funds have increased dramatically since the 1990s. There also has been only a limited amount of research conducted into the area of hotel REIT risk and performance. It would be interesting to further investigate the investment and finance strategy of hotel REITs and non-REITs.

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Table 1. Lodging REITs

REIT name	* Type	Exchange Ticker
Ashford Hospitality Trust	E	AHT
Boykin Lodging Company	E	Boy
DiamondRock Hospitality Company	E	DRH
Eagle Hospitality Properties Corporation	E	EHP
Equity Inns, Inc.	E	ENN
FelCor Lodging Trust Incorporated	E	FCH
Hersha Hospitality Trust	E	HT
Highland Hospitality Corporation	E	HIH
Hospitality Properties Trust	E	HPT
Host Marriott Corporation	E	HMT
Innkeepers USA Trust	E	KPA
Jameson Inns, Inc.	E	JAMS
La Quinta Properties, Inc.	E	LQI
LaSalle Hotel Properties	E	LHO
MeriStar Hospitality Corporation	E	MHX
MHI Hospitality Corporation	E	MDH
PMC Commercial Trust	H	PCC
RFS Hotel Investors, Inc.	E	RFS
Strategic Hotel Capital, Inc	E	SLH
Sunstone Hotel Investors Inc.	E	SHO
Supertel Hospitality, Inc.	E	SPPR
Winstone Hotels	E	WXH

* E= equity trust, H = hybrid trust

Table 2. Descriptive statistics and t-tests for the means of REIT and non-REIT lodging companies

Panel A

Variable	Non-REIT			REIT				
	N	Mean	S.D.	N	Mean	S.D	t-stat	p-value
Institutional holding	6690	0.06	0.13	2764	0.09	0.14	-7.37	0.00
Log of institutional holding	4593	-3.69	2.15	2469	-3.50	1.85	-3.87	0.00
Size	4741	6.10	2.14	2315	5.59	1.25	12.46	0.00
BVA/MVA	4172	0.88	0.38	2271	1.00	0.18	-15.98	0.00
CAP EXP/AS	4850	0.08	0.10	2397	0.00	0.03	52.47	0.00
DR	5094	0.43	0.52	2412	0.42	0.15	0.38	0.70
Price	5046	23.41	22.95	2316	14.17	8.76	-24.93	0.00
Dividend to assets	5089	0.02	0.24	2308	0.04	0.03	4.86	0.00
Excess returns	4826	-0.03	0.12	2707	-0.03	0.09	0.62	0.53

- Institutional holdings for a specific stock in the given quarter are determined by percentage of institutional ownership (the share holdings of all reporting institutions divided by the total shares outstanding for the firm). If a lodging firm in the Compustat database is not held by any institution, institutional holding of the firm becomes zero.
- Size is the natural log of the market value of a firm's equity.
- BVA/MVA is the ratio of book value of asset to market value of asset.
- CAP EXP/AS is the ratio of capital expenditure to total assets.
- DR is the ratio of total debt to total assets. Institutional holdings are the ratio of the holdings of all reporting institutions to the outstanding shares for the firm.
- Price is market price per share.
- Dividend to assets is annual dividend divided to total assets.
- Excess returns are actual returns minus risk-free rate.

Panel B

The first quartile of market capitalization

Variable	Non-REIT			REIT				
	N	Mean	S.D.	N	Mean	S.D	t-stat	p-value
Institutional holding	1721	0.09	0.16	678	0.11	0.17	-2.28	0.02
Log of institutional holding	1721	-4.14	2.48	678	-3.64	2.07	-5.05	0.00
Size	1347	5.24	2.04	631	4.99	1.69	2.88	0.00
BVA/MVA	1202	1.06	0.38	589	0.95	0.16	8.59	0.00
CAP EXP/AS	1217	0.10	0.11	622	0.00	0.01	32.16	0.00
DR	1347	0.46	0.25	631	0.51	0.14	-5.76	0.00
Price	1517	16.5	17.5	631	11.90	8.74	8.14	0.00
Dividend to assets	1344	0.01	0.01	602	0.03	0.02	-24.55	0.00
Excess returns	1362	-0.05	0.12	676	-0.05	0.08	0.01	0.99

Table 2. Descriptive statistics and t-tests for the means of REIT and non-REIT lodging companies

Panel B, continued

The second quartile of market capitalization

Variable	Non-REIT			REIT				
	N	Mean	S.D.	N	Mean	S.D.	t-stat	p-value
Institutional holding	1849	0.09	0.16	1514	0.10	0.15	-2.39	0.02
Log of institutional holding	1849	-4.04	2.40	1514	-3.43	1.85	-8.28	0.00
Size	1482	5.50	1.72	1325	5.49	0.79	2.33	0.02
BVA/MVA	1365	0.98	0.41	1292	0.99	0.17	-1.05	0.29
CAP EXP/AS	1301	0.10	0.11	1325	0.00	0.00	32.54	0.00
DR	1482	0.42	0.21	1325	0.44	0.12	-2.87	0.00
Price	1642	17.5	16.7	1325	12.04	6.47	12.10	0.00
Dividend to assets	1482	0.01	0.02	1305	0.04	0.02	-27.81	0.00
Excess returns	1492	-0.02	0.14	1511	-0.03	0.08	2.80	0.01

The third quartile of market capitalization

Variable	Non-REIT			REIT				
	N	Mean	S.D.	N	Mean	S.D.	t-stat	p-value
Institutional holding	2494	0.10	0.16	1115	0.13	0.18	-4.47	0.00
Log of institutional holding	2494	-3.89	2.29	1115	-3.14	1.68	-10.94	0.00
Size	2023	6.18	1.49	955	6.26	0.80	-1.99	0.05
BVA/MVA	1917	0.98	0.39	922	0.97	0.16	0.91	0.36
CAP EXP/AS	1893	0.09	0.10	1065	0.00	0.01	37.97	0.00
DR	2029	0.37	0.20	1065	0.42	0.15	-9.25	0.00
Price	2223	20.00	15.60	955	15.74	8.16	10.14	0.00
Dividend to assets	2029	0.01	0.06	935	0.03	0.02	-10.29	0.00
Excess returns	2081	-0.03	0.11	1107	-0.02	0.09	-0.80	0.42

The fourth quartile of market capitalization

Variable	Non-REIT			REIT				
	N	Mean	S.D.	N	Mean	S.D.	t-stat	p-value
Institutional holding	1356	0.10	0.18	436	0.14	0.20	-4.37	0.00
Log of institutional holding	1356	-4.12	2.49	436	-3.04	1.71	-10.16	0.00
Size	988	5.85	2.05	386	6.04	1.14	-2.25	0.025
BVA/MVA	979	1.08	0.40	353	0.91	0.12	11.47	0.00
CAP EXP/AS	872	0.11	0.12	386	0.00	0.01	26.64	0.00
DR	988	0.39	0.19	386	0.50	0.12	-12.86	0.00
Price	1148	19.70	18.70	386	14.95	9.60	6.43	0.00
Dividend to assets	988	0.00	0.01	366	0.02	0.01	-19.85	0.00
Excess returns	1014	-0.03	0.11	433	-0.03	0.07	-0.19	0.85

Table 3. Institutional Holdings by the time period and types of institutions

		Bank		Insurance		Mutual Fund		Brokerage Firms		pension			
year	Month	# Shares	& Dollars of shares	shares	Dollars of shares	shares	Dollars of shares	shares	Dollars of shares	shares	Dollars of shares	total shares	total dollar
1980	12	14	500	1	42	1	41	9	262	4	140	30	985
		46.43%	50.75%	4.03%	4.31%	4.33%	4.11%	30.10%	26.57%	15.11%	14.26%		
1981	12	16	532	3	92	2	60	9	262	4	126	34	1072
		46.35%	49.59%	8.19%	8.62%	5.96%	5.62%	26.95%	24.41%	12.54%	11.75%		
1982	12	21	808	3	121	3	116	12	408	4	150	43	1603
		48.07%	50.38%	7.27%	7.54%	8.02%	7.25%	27.37%	25.47%	9.27%	9.36%		
1983	12	17	838	5	236	5	173	19	846	4	201	50	2293
		33.99%	36.53%	9.61%	10.29%	9.24%	7.56%	38.82%	36.87%	8.35%	8.74%		
1984	12	17	769	4	177	4	132	18	749	4	157	46	1984
		35.88%	38.77%	7.87%	8.94%	8.84%	6.63%	39.47%	37.76%	7.95%	7.89%		
1985	12	13	613	4	203	4	168	22	1048	6	276	49	2307
		27.37%	26.55%	7.32%	8.82%	8.20%	7.27%	45.60%	45.42%	11.51%	11.95%		
1986	12	16	693	14	305	4	156	31	1401	8	400	73	2955
		22.04%	23.46%	19.04%	10.32%	5.56%	5.26%	42.95%	47.42%	10.42%	13.53%		
1987	12	15	475	14	240	8	238	42	1282	7	243	86	2478
		17.58%	19.18%	16.58%	9.67%	9.63%	9.61%	48.64%	51.72%	7.56%	9.82%		
1988	12	21	602	5	188	7	198	49	1558	8	279	89	2824
		23.54%	21.30%	5.32%	6.64%	7.78%	7.00%	54.73%	55.17%	8.63%	9.88%		
1989	12	21	763	6	201	7	251	42	1598	8	373	84	3186
		24.94%	23.94%	7.45%	6.30%	7.77%	7.87%	49.75%	50.17%	10.08%	11.72%		
1990	12	5	123	3	59	4	9	14	320	9	71	35	582
		15.90%	21.13%	7.94%	10.15%	10.92%	1.47%	40.26%	54.97%	24.97%	12.28%		
1991	12	6	168	2	84	4	75	19	487	9	72	40	885
		14.37%	18.94%	6.05%	9.49%	10.46%	8.42%	47.70%	55.03%	21.42%	8.12%		
1992	12	9	187	3	83	5	141	28	778	5	103	50	1293
		17.26%	14.44%	6.21%	6.46%	10.76%	10.91%	55.93%	60.20%	9.83%	7.99%		
1993	12	13	451	11	361	24	697	77	2295	5	194	131	3999

		9.88%	11.27%	8.69%	9.02%	18.35%	17.44%	58.98%	57.40%	4.09%	4.86%		
1994	12	42	2390	23	1016	42	1260	166	6003	13	692	286	11361
		14.60%	21.04%	8.12%	8.94%	14.59%	11.09%	58.15%	52.84%	4.54%	6.09%		
1995	12	36	1191	60	2471	106	2853	194	6093	21	758	417	13366
		8.71%	8.91%	14.41%	18.49%	25.31%	21.35%	46.45%	45.59%	5.13%	5.67%		
1996	12	70	2359	78	2343	218	6539	311	9039	34	1085	710	21365
		9.82%	11.04%	10.97%	10.97%	30.71%	30.61%	43.76%	42.30%	4.74%	5.08%		
1997	12	73	3464	72	3057	224	9395	319	11364	41	2141	729	29422
		10.02%	11.77%	9.86%	10.39%	30.69%	31.93%	43.74%	38.62%	5.69%	7.28%		
1998	12	56	1233	68	1214	0	0	274	5867	277	5361	676	13674
		8.30%	9.01%	10.14%	8.88%	0.00%	0.00%	40.52%	42.90%	41.05%	39.20%		
1999	12	47	840	22	331	50	502	48	776	545	9622	711	12071
		6.56%	6.96%	3.13%	2.74%	6.98%	4.15%	6.76%	6.43%	76.57%	79.71%		
2000	12	9	209	19	339	39	501	75	1762	615	14639	756	17450
		1.17%	1.20%	2.47%	1.94%	5.13%	2.87%	9.88%	10.10%	81.36%	83.89%		
2001	12	77	1682	24	396	54	684	96	1746	883	15819	1134	20327
		6.76%	8.27%	2.12%	1.95%	4.79%	3.36%	8.46%	8.59%	77.87%	77.83%		
2002	12	128	2032	16	180	53	602	105	1469	924	13796	1225	18078
		10.46%	11.24%	1.29%	0.99%	4.32%	3.33%	8.56%	8.13%	75.37%	76.31%		
2003	12	171	3840	8	162	23	531	133	2559	1068	20221	1403	27313
		12.19%	14.06%	0.60%	0.59%	1.63%	1.94%	9.48%	9.37%	76.10%	74.03%		
2004	12	193	5254	14	380	26	892	171	5112	1076	30634	1479	42271
		13.03%	12.43%	0.95%	0.90%	1.73%	2.11%	11.56%	12.09%	72.74%	72.47%		

shares: millions
& dollars of shares: million

Table 4. Correlation matrix with p-values

	Log of institution holding	Size	Book-to-market ratio	Capital expenditure to asset	Debt ratio	price	Dividend to assets	Dummy REIT/ non REIT
Size	***0.232 0.000							
Book-to-market ratio	***-0.143 0.000	***-0.338 0.000						
Capital Expenditure to asset	***0.085 0.000	0.001 0.923	***-0.174 0.000					
Debt ratio	***0.037 0.002	***-0.326 0.000	*** 0.030 0.014	0.012 0.316				
Price	***0.202 0.000	***0.666 0.000	***-0.582 0.000	*** 0.116 0.000	***-0.280 0.000			
Dividend to assets	***0.043 0.000	***0.038 0.001	***-0.077 0.000	*** -0.155 0.000	*** 0.116 0.000	*** 0.039 0.001		
Dummy REIT/ non REIT	***0.033 0.004	***-0.290 0.000	***0.208 0.000	*** -0.478 0.000	*** 0.039 0.001	*** -0.308 0.000	*** 0.184 0.000	
Excess return	0.016 0.16	***0.083 0.000	***-0.125 0.000	*** -0.036 0.003	** -0.023 0.053	*** 0.08 0.000	***-0.041 0.001	-0.007 0.566

- Institutional holdings for a specific stock in the given quarter are determined by percentage of institutional ownership (the share holdings of all reporting institutions divided by the total shares outstanding for the firm). If a lodging firm in the Compustat database is not held by any institution, institutional holding of the firm becomes zero.
- Size is the natural log of market value of a firm's equity.
- Book-to-market ratio is the ratio of book value of asset to market value of asset.
- Capital expenditure to asset is the ratio of capital expenditure to total assets.
- Debt ratio is the ratio of total debt to total assets. Institutional holdings are the ratio of the holdings of all reporting institutions to the outstanding shares for the firm.
- Price is price per share.
- Dividend to assets is annual dividend divided to total assets.
- Dummy REIT/ non REIT: 1= REIT 0=non-REIT
- Excess returns are actual returns minus risk-free rate.

Table 5. Regression analysis results of dividend policy on institutional holdings

Dependent variable is log of institutional holding percentage.

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
explanatory variables	All Institutions		Bank		Insurance		Mutual fund		Brokerage		Pension Fund	
number of observations	5920		1315		1097		1035		1296		1177	
R-square	8.4%		31.4%		20.7%		14.7%		17.6%		29.4%	
R-square adjusted	8.3%		31.0%		20.2%		14.0%		17.1%		28.9%	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
Intercept	-6.40	0.00	-7.54	0.00	-7.63	0.00	-4.34	0.00	-4.79	0.00	-8.09	0.00
size	0.33	0.00	0.49	0.00	0.27	0.00	-0.00	0.96	0.24	0.00	0.70	0.00
book-to-market ratio	-0.20	-1.79	-0.21	0.20	-1.03	0.00	-1.06	0.00	-0.78	0.00	1.56	0.00
capital expenditure to assets	2.88	0.43	3.48	0.00	9.53	0.00	4.03	0.00	3.35	0.00	-6.00	0.00
debt ratio	1.07	0.00	0.48	0.04	2.35	0.00	0.65	0.04	0.94	0.00	1.21	0.00
Price	0.01	0.00	0.01	0.00	0.01	0.07	0.02	0.00	0.02	0.00	-1.02	0.00
dividend to asset	0.33	0.52	-0.36	0.66	2.96	0.01	6.52	0.00	2.08	0.02	-9.75	0.00
Dummy REIT/non-REIT	0.64	0.00	0.86	0.00	1.01	0.00	0.43	0.00	0.71	0.00	0.42	0.00
Excess returns	-0.11	0.65	-0.42	0.25	-1.59	0.00	0.09	0.86	0.45	0.27	0.79	0.11

*, **, ***: significant at the level of 10%, 5% and 1%.

- Institutional holdings for a specific stock in the given quarter are determined by percentage of institutional ownership (the share holdings of all reporting institutions divided by the total shares outstanding for the firm). If a lodging firm in the Compustat database is not held by any institution, institutional holding of the firm becomes zero.
- Size is the natural log of market value of a firm's equity.
- Book-to-market ratio is the ratio of book value of asset to market value of asset.
- Capital expenditure to assets is the ratio of capital expenditure to total assets.
- Debt ratio is the ratio of total debt to total assets. Institutional holdings are the ratio of the holdings of all reporting institutions to the outstanding shares for the firm.
- Price is price per share.
- Dividend to asset is annual dividend divided to total assets.
- Dummy REIT/ non REIT: 1= REIT 0=non-REIT.
- Excess returns are actual returns minus risk-free rates.

Table 6. Regression analysis results of dividend policy on institutional holdings by the time period

Dependent variable is log of institutional holding percentage.

	All periods		#1980-1985		#1986-1990		1991-1995		1996-2000		2001-2004	
explanatory variables	All Institutions		All Institutions		All Institutions		All Institutions		All Institutions		All Institutions	
number of observations	5920		292		363		546		1959		2166	
R-square	8.4%		21.3%		35.2%		26.4%		9.4%		9.6%	
R-square adjusted	8.3%		19.4%		34.0%		25.3%		9.0%		9.2%	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
Intercept	-6.40	0.00	-3.54	0.00	-8.26	0.00	-3.46	0.00	-6.05	0.00	-6.53	0.00
size	0.33	0.00	0.22	0.12	0.33	0.01	-0.43	0.00	0.35	0.00	0.47	0.00
book-to-market ratio	-0.20	0.07	-0.41	0.51	0.61	0.22	-0.88	0.02	-0.51	0.00	-0.04	0.88
capital expenditure to assets	2.89	0.00	-0.07	0.96	2.73	0.06	9.41	0.00	3.35	0.00	-9.48	0.00
debt ratio	1.07	0.00	-1.67	0.03	2.38	0.00	0.38	0.51	0.42	0.20	0.40	0.23
Price	0.01	0.00	0.01	0.18	0.02	0.00	0.05	0.00	0.01	0.14	0.00	0.55
dividend to asset	0.33	0.52	-16.02	0.09	-1.19	0.09	32.49	0.00	2.61	0.01	-16.68	0.00
Dummy REIT/non-REIT	0.63	0.00					-0.75	0.01	0.52	0.00	0.67	0.00
Excess returns	-0.11	0.65	0.61	0.55	2.17	0.01	-0.72	0.25	0.13	0.79	-0.41	0.26

- *, **, ***: significant at the level of 10%, 5% and 1%.
- # : All the hospitality firms are non-REIT firms.
- Institutional holdings for a specific stock in the given quarter are determined by percentage of institutional ownership (the share holdings of all reporting institutions divided by the total shares outstanding for the firm). If a lodging firm in the Compustat database is not held by any institution, institutional holding of the firm becomes zero.
- Size is the natural log of market value of a firm's equity.
- Book-to-market ratio is the ratio of book value of asset to market value of asset.
- Capital expenditure to assets is the ratio of capital expenditure to total assets.
- Debt ratio is the ratio of total debt to total assets. Institutional holdings are the ratio of the holdings of all reporting institutions to the outstanding shares for the firm.
- Price is price per share.
- Dividend to asset is annual dividend divided to total assets.
- Dummy REIT/ non REIT: 1= REIT 0=non-REIT.
- Excess returns are actual returns minus risk-free rates.