

# The Influence of Firm Operating Characteristics on Incentive Compensation in the Executive Suite: Equity Reits vs. Reocs

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## Abstract

This paper presents an analysis of the influence of firm-specific characteristics on top executive compensation in equity REITs and REOCs and finds that agency costs of debt and equity influence REIT and REOC executive compensation. The evidence suggests that FFO volatility has a significant influence on executive compensation and that executives of internally managed REITs enjoy a more favorable compensation design. In addition, the relationship between CEO/Chair of the Board duality and executive compensations support the “passing the baton” hypothesis.

**Key words:** Real estate; Executive compensation; Agency conflict.

## 1. Introduction

Empirical investigation of a relationship between pay and performance in the higher echelon of company management has attracted a great deal of attention from practitioners and scholars. The idea underlying incentive pay is that managers should share risk with shareholders. Earlier research (for example, Jensen and Meckling, 1976; Holmstrom, 1979; Eisenhardt, 1988; Jensen and Murphy, 1990a, 1990b) argues that tying executive compensation to a firm’s performance better aligns interests of shareholders and managers, reducing agency conflict.

A fundamental assumption underlying financial theory is that shareholders are rational wealth maximizing individuals. Rational investors understand that high performance requires effort and risk-taking by the management team. The separation of ownership and management leads to a “moral hazard” situation in which managers (agents) carry out actions that shareholders (principals) cannot monitor. The main reason for a “moral hazard” is information asymmetry between the agent and the principal. Top echelon managers control company resources and are well informed about the company’s activities while shareholders usually are not. The existing information asymmetry allows managers to maximize their compensation package by concentrating on short-term rather than long-term performance or forgoing profitable investment opportunities for the sake of a “safe” investment, resulting in wealth losses to the principals. In order to overcome the moral hazard problem and induce agents to behave in the best interest of principal; corporate boards should design managerial compensation packages (base salary, bonus, and long-term compensation) so that the highest financial rewards accrue to managers whose firms exhibit the highest firm performance.

The empirical evidence on determinants of top management compensation is extensive but inconclusive. Researchers find evidence that managerial compensation is related to both market-based and accounting-based measures of performance. However, current research does not identify which factors are the most reliable determinants of managerial performance, leaving open the issue of which measures are the most appropriate pay-for-performance indicators.

In this study, I focus on a specific industry, equity Real Estate Investment Trusts (REITs) and Real Estate Operating Companies (REOCs), and analyze the relationship between executive compensation and operating attributes of real estate companies. Previous studies used other variables, such as sales revenue, net income, stock performance, market return, and firm beta to examine executive compensation. This study expands the earlier empirical work in REIT compensation by specifically analyzing the relationship between different types of executive compensation and operating attributes of real estate companies. The analysis focuses on the influence of firm’s investment opportunities, capital structure, monitoring mechanism, ownership structure, and the CEO’s duality on real estate investment companies’ executive compensation composition. Hardin

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(1998) highlights the need for development of industry specific compensation models that account for inter-industry differences in capital structure, ownership structure, and risk.

REITs are different from other investment vehicles due to the basic requirements set forth in U.S. tax code. REITs must:

- 1) distribute 90% of income as dividends and have at least 100 shareholders or more (with a prohibition against five or fewer shareholders owning 50% or more of the shares),
- 2) have at least 75% of their assets invested in real estate oriented investments, cash and/or government securities,
- 3) generate at least 75% of their income from rent, mortgages, and the sale of property,
- 4) hire independent real estate professionals to execute certain management activities, and
- 5) not operate or manage hotels or health care facilities.

A real estate investment company meeting the above conditions qualifies as a REIT and pays no federal corporate income tax on income paid out as cash dividends. These conditions, however, place restrictions on the ability of the firm to pursue potentially profitable investments that would cause the company to violate a condition and lose the beneficial REIT tax status.

A REOC is a real estate investment company that does not meet the qualifications to be a REIT. REITs and REOCs operate in the same industry so it appears that there should be little variation in their compensation structure. The REOC format grew very slowly, but has become more common in recent times. In the past, the tax advantages of the REIT format outweighed any disadvantages. However, the 2003 tax package may change that, making REOCs a more appealing alternative to REITs. The 2003 law excluded REIT dividends from the tax break given other corporate dividends under the reasoning that REITs pay no corporate income taxes.

In general, REOCs face fewer restrictions than REITs. REOCs do not have to pay any specified level of income as dividends, and most pay none, preferring to retain earnings to finance their growth. In addition, REOCs have no restriction on the number of owners nor on ownership concentration, the company can invest in any assets of its choosing, income may be derived from any investment combination, and specific tasks are not required to be conducted by outside managers.

These restrictive conditions potentially lead to greater agency costs for REOC shareholders for three reasons.

1. REOC stockholders potentially face a greater agency cost because REOC managers do not have to meet the discipline of tax-code mandated cash dividend payout requirements of REITs (e.g. Delcoure and Dickens, 2004).
2. REOCs have greater investment opportunity sets which they can fund from internally generated funds. Since agency theory posits that stockholders' of high growth firms face greater monitoring cost, REOCs, having a greater opportunity set for growth, likely face greater monitoring costs than their REIT counterparts.
3. REOCs do not need to hire outside managers. The impact of the outside management argument is less clear. REITs and, at times, REOCs hire outside management. If outside management monitors inside managers, the monitoring could mitigate principal-agent conflict. However, the existence of outside managers also can be viewed as an additional layer of potential principal-agent problems as shareholders would have to align their interests with interests of internal and external management.

The last two reasons, earnings retention to finance future growth and outside management, overlap. REITs, with their dividend payout requirements, would seem to have little need to hire outside managers for monitoring purposes. That expectation seems correct given that 66%<sup>1</sup> of the REITs in my sample choose self-management.

The implications from the dividend and outside management issues also lead to differing conclusions concerning use of leverage. REITs seldom retain any earnings, leading to the likely need for external financing, which can be obtained from issuing additional equity or debt. While

<sup>1</sup> The REIT Modernization Act (RMA) and the Tax Relief Extension Act 1999, allow a REIT to own to 100% of the stock of a taxable REIT subsidiary (TRS) that can provide non-customary services (e.g. property management, hotel management, tennis lessons, web services) to REIT tenants without disqualifying the rent a REIT receives from its tenants. According to the SNL database, a REIT is "self-managed if it manages the day-to-day operations of its own properties or the management firm that does manage the properties is a subsidiary."

new debt should be less expensive than new equity, Ghosh, Nag, and Sirmans (1997) report that REITs raised roughly twice as much in equity than in debt over 1991-1996. Perhaps, REITs need to raise added equity to replace the funds paid out as dividends, but they cannot take full advantage of the tax shield for interest expenses.

At the same time, REOCs' lower dividend payout ratio leads to the need for greater monitoring. One possible way REOCs could align management and shareholders' interests is the use of leverage (Ross, 1977). If true, REOCs should have greater leverage compared to REITs.

Analyzing executive compensation of 56 real estate companies between 1999 and 2001, I find support for the premise that firm-specific characteristics affect executive compensation. The empirical results provide evidence regarding the tradeoff between incentive alignment and external monitoring. Consistent with the substitution hypothesis, I find a negative relation between executives' compensation and executive stockownership. My results substantiate that debt agency costs influence incentive compensation in REOCs' executive suite. I also find support for the "passing of the baton" hypothesis by uncovering positive relations between CEO/Chair of the Board of Directors duality and executive compensation. The empirical evidence reveals that internally-managed REITs' executives enjoy a favorable compensation design. Finally, the empirical findings suggest that a fund from operation volatility exerts a significant influence on real estate executive compensation contracts.

## **2. Model specification**

First, I develop expected relationships between the structure of executive compensation and the manager- and firm-specific characteristics of investment opportunities, monitoring mechanism, cash flow volatility, capital structure, and CEO/Board chair duality.

### ***2.1. Investment opportunities***

Smith and Watts (1984) suggest that managers' actions are less readily observable if the firm has more investment opportunities. It is difficult for shareholders who do not have the manager's specific knowledge to observe all the investments from which managers choose. According to Ryan et al. (2001), firms with high growth opportunities derive a larger portion of their value from future investment opportunities rather than from existing assets. Managers of firms with higher growth opportunities are harder to monitor since they are more preoccupied with future investment decisions rather than efficient management of existing assets. Thus, higher growth companies should use long-term compensation generously to entice managers to act in shareholders' wealth maximization interest.

REOCs face greater investment opportunities than REITs. Mueller (1998) points out that a real estate company starts its operations with acquisition of properties. In order for the company to grow, it needs to find additional profitable investment opportunities in order to maintain the same funds from operations per share growth rate. According to Gaver and Gaver (1993), market-to-book ratio is the proxy for growth opportunities used most frequently by earlier researchers. The ratio relies on current stock price, which is based on public information available at a point in time concerning the value of the firm's shares, to assess the firm's growth potential. Following a similar approach, I use the ratio of market-to-book value of assets, defined as the market value of equity divided by the book value of assets, as a proxy for growth opportunities. The investment opportunity hypothesis (Baber et al., 1996) predicts that this ratio should be positively related to base and long-term compensation and negatively related to cash bonus. Empirical investigation into the structure of executive compensation by Ryan et al. (2001) finds a positive relationship between the CEO stock option compensation and firm capital expenditures.

### ***2.2. Monitoring mechanism***

Effective monitoring should reduce the need for incentive alignment. I use institutional ownership as a proxy for external monitoring. If external monitoring reduces the need for incentive alignment, I expect all types of incentive compensation to be negatively related to institutional ownership. Downs (1998) finds that REITs experiencing an increase in institutional ownership exhibit higher market performance compared to REITs with low institutional holding. Crain et al. (2000) corroborate this finding and report that after the increase in the institutional ownership of

REIT stocks, the diversifiable risk component of equity REIT stock has been significantly reduced. Wang et al. (1995) reaffirm that institutional investors play an important role in REITs' returns.

### ***2.3. Incentive alignment***

As top managers own more shares, their interests become more aligned with the interest of other shareholders and there is less need for incentive compensation. Following Ryan et al. (2001), I use the percentage of a firm's shares held by the top three executives to measure inside ownership and expect a negative relation between this measure and all forms of incentive compensation. Ryan et al. (2001) find that CEO option-based compensation is inversely related to CEO stockownership. In the real estate literature, Ghosh and Sirmans (2003) find CEO total compensation (sum of salary, annual bonus, and equity based compensation) negatively related to the number of outstanding shares owned by the CEO.

### ***2.4. Efficient risk-sharing***

Holmstrom and Milgrom (1987) argue that incentive compensation should not be based on a "noisy performance metric" and theoretically prove that "incentive contracts" tied to the firm's stock price performance mitigate agency problem between managers and shareholders. However, there are circumstances when tying compensation to the firm's market performance does not produce the desired outcome. For example, consider a risk-averse manager with undiversified wealth and human capital choosing between two projects, one safe and one risky. The two projects have positive net present value, thus a diversified shareholder accepts them both. Managers, however, have to bear the total risk of their investment choice and hence have incentives to forego risky projects. Demsetz and Lehn (1985) posit that as a firm's cash flows become more volatile, it becomes harder to monitor management, increasing the need for incentive alignment. In order to entice manager to take on risky projects, companies often use option-based compensation that limits manager's downside risk.

Ryan et al. (2001) uncover positive and statistically significant relations between cash flow volatility and option-based compensation and a negative relation between cash bonus, which depends on short-term results, and the cash flow volatility. Thus, firms with high cash flow volatility avoid tying manager's compensation to "noisy performance" measure, and instead use more option-based compensation to overcome monitoring problems and offset a manager's risk aversion. Vincent (1999) states that the REIT industry devised a unique performance measure, funds from operation (FFO)<sup>1</sup>, that has become an industry standard in assessing real estate company operations and determining management compensation. Assuming that REITs' stock returns provide the best benchmark for assessing REIT performance, Vincent examines the association between REITs' market return and FFO for 138 REITs between 1994 and 1996 and concludes that the estimated positive and statistically significant coefficient on FFO, holding other accounting performance measures fixed (earnings per share (EPS), cash flow from operations (CFO), and earnings before interest, taxes, depreciation, and amortization (EBITDA)) effectively summarizes the firm's activities over the reporting period. I hypothesize that FFO volatility, calculated as a logarithm of one plus the standard deviation of FFO, will be positively related to long-term compensation and negatively related to cash bonuses.

### ***2.5. Capital structure***

When their compensation is heavily based on long-term compensation, managers have incentives to engage in risky investments, benefiting shareholders at the expense of the creditors. In support of this argument, DeFusco et al. (1990) document that the market perceives executive option-based compensation as an improved incentive enticing managers to undertake risky projects and act in the best interests of shareholders. Their research shows a positive share price reaction to the announcement of the inclusion of stock options in the executives' compensation package. At the same time, the examination of the bond market reaction to executive stock option plan suggests that rational bond investors react negatively to the anticipated increase in managerial risk-taking.

<sup>1</sup> FFO is calculated in accordance with the NAREIT definition of Funds from Operations adopted in 1991 and clarified in 1995, 1999, and 2002 as "net income (computed in accordance with GAAP), excluding capital gains (or losses) from sales of property, plus depreciation and amortization, and after adjustments for unconsolidated partnerships and joint ventures."

Ultimately, shareholders bear the debt agency cost in the form of higher interest rates and restrictive covenants. Recognizing that an optimal managerial compensation structure depends on the agency relations between shareholders and management, and shareholders and creditors, John and John (1993) predict that the use of stock-option compensation should be negatively related to the firm's leverage ratio. Ryan et al. (2001) document negative relations between stock-options and debt-to-equity ratio and no relations between cash bonus and debt-to-equity ratio.

On the real estate side, previous financial investigation in the optimal capital structure of REITs is inconclusive. Since one of the motivations of a firm's use of debt is to obtain a tax shelter, there should be no advantage of REIT use of debt because REITs pay no income taxes and compete for funds in the debt market with firms that enjoy tax savings and thus can afford to pay a higher borrowing cost.

On the other hand, a company's use of debt in its capital structure potentially reduces agency conflict between managers and stakeholders. Debt financing reduces free cash flows that managers may invest in less profitable projects. With a company's use of debt financing, a substantial amount of cash flow is committed to debt payments, constraining managers' ability to make wasteful decisions. Also, the debt holders have incentives to monitor managers' actions. Hsieh et al. (2000) compare the capital structure of REITs to industrial companies. They find that REITs more heavily rely on short-term debt compared to long-term debt. To proxy the equity-debt agency conflict, I use ratios of short-term debt to equity and long-term debt to equity. Following John and John (1993) and Ryan et al. (2001), I anticipate a negative relation between these two leverage ratios and long-term compensation.

### **2.6. CEO duality**

When the CEO chairs the board of directors, the ability of the board to objectively monitor executives' decisions is impaired. Agency conflicts may arise that results in a greater need for incentive compensation. Brickley et al. (1997) find that dual CEOs receive more total compensation, but there is little evidence on the incentive structure of the rest of executive suite. Ryan et al. (2001) find no relation between CEO/Chair duality and different forms of executive compensation. At the same time, Ghosh and Sirmans' (2003) examination of REITs board independence, ownership structure, and performance claims that CEO duality is harmful to REIT performance. Their findings suggest that institutional owners and outside board members fail to serve as alternative disciplining mechanism of suboptimal managerial behavior. To explore the relationship between CEO duality and top executive compensation in real estate industry, I use a dummy variable to control for CEO/Chair duality in my test ("1" – CEO/Chairman and "0" – otherwise).

### **2.7. Self-management**

Despite recent changes in the regulatory environment associated with the 1986 Tax Reform, the REIT Simplification Act of 1997, and the REIT Modernization Act of 1999, hotel/motel REITs still have to hire contractors to operate and manage their properties.

External management creates an extra layer of agency conflict, between REITs/REOCs management and external operators in addition to agency problem between shareholders and REITs/REOCs management. In contrast, in self-managed REITs and REOCs, this source of agency problem does not exist. Higher managerial and institutional ownership combined with the self-management should induce managers to behave more responsibly.

Agency problems between external managers/advisors and REITs management have been the subject of several empirical investigations. Most of these studies (e.g. Howe and Shilling, 1990; Cannon and Vogt, 1995; Ambrose and Linneman, 2001; Ghosh and Sirmans, 2003) investigate the impact of external management agency cost on REIT performance. Building on this literature, I add a dummy variable to control for external management in my test ("1" – self-managed, "0" – otherwise).

Investigations into a relation between external management and executive compensation structure by Golec (1994) and Capozza and Seguin (1998) find that external advisors have incentives to increase their own compensation at the expense of shareholders and managers. In the lodging industry, for instance, a hotel/motel operator, acting as an intermediary between hotel guests and hotel owners, negotiates a compensation contract that has both a fixed and a variable component based on

total hotel revenues. In addition, because hotel properties are frequently franchise-affiliated, the hotel operator agrees on franchise fees in advance. From investors' point of view, such tripartisan relationship creates additional agency cost. There are instances when hotel operators increase their compensation at the expense of hotel owners by advantageous negotiation of management contracts. This situation is referred to as "lease leakage" and has been an issue with many hotel/motel REITs (Hess et al., 2001). Thus, I hypothesize positive relations between REITs/REOCs managers' base compensation and external management, and positive relations between their cash bonus and external management. The effect of external management of REITs/REOCs on executive long-term compensation is less obvious and harder to predict because of the number of variables that determine the value of long-term compensation besides the manager-operator relations.

### 3. Sample selection and data

#### 3.1. Sample construction

From the SNL Database (see Reeder (2001) for an overview of real estate datasources), I identify all 169 (145 REITs and 24 REOCs) equity real estate companies trading on the New York Stock Exchange, American Stock Exchange and in the NASDAQ system from January 1999 through December 2001. I start the study at 1999 given that the SNL database provides compensation data for real estate companies from 1999 to present time. My next step is to create a more comparable sample considering the fact that REOCs' investments are predominately hotel/motel-related according to their property focus as reported by the company. My sample begins with 14 publicly traded hotel/motel REITs. Using a random number generator, I add REITs randomly to the group until I create a REIT grouping containing 46% of its funds invested in hotel/motel assets. This matches the 46% of assets that the REOCs in the sample have invested in hotel/motel property. To validate that the two samples are comparable, I calculate the ratio of investments in hotels/motels to total assets for REITs and REOCs (29% vs. 31%)<sup>1</sup>. Therefore, the sample I use for the remainder of the paper has 32 REITs and 24 REOCs that have approximately the same hotel/motel investment exposure.

For these 56 companies, I collect the following manager-specific information: annual compensation (salary, cash bonus, long-term compensation, and total compensation), age of top three executives, their incentive alignment (inside stockownership), and CEO duality (whether CEO is also the chair of the board of directors). Also, from the same data source, I obtain firm specific characteristics: firm size (total assets), institutional investors' stock ownership (percentage of outstanding equity owned by institutional investors), and funds from operation, market-to-book value of assets, long-term and short-term debt.

#### 3.2. Sample characteristics

Economic models attempt to explain why CEOs receive higher pay than their subordinates: CEOs are more competent, better qualified, carry more responsibilities, and have a greater impact on firm value. Lazear and Rosen (1981) endeavor to explain the difference in pay in executive suite with the fact that higher CEOs' compensation motivates other senior managers, competing for CEO succession, to perform better. Thus, large pay differences at the top can improve firm performance. On the other hand, empirical work of O'Reilly et al. (1998) argues that managers in a tournament pay structure may undermine each others' efforts, resulting in reduced company performance.

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<sup>1</sup> The universe of publicly owned hotel properties can be segmented by ownership between public and private real estate companies. REITs and REOCs own eight and eleven percent respectively of the total hotel/motel properties in the US. The private real estate and public gaming/entertainment firms (for whom the value of hotel properties as a real estate investment is ancillary to overall business value) account for the remaining 81%. The difference between REITs and REOCs hotel ownership can be attributed to the regulatory restrictions on REIT ownership of hotel operators. The passage of REIT Modernization Act of 1999, which allows REITs to contract with hotel operators through taxable subsidiaries, creates opportunities for REIT hotel ownership. However, REITs are still not allowed to act as hotel managers or hotel operators. It is not surprising that most of publicly owned hotels/motels are real estate operating companies. REOCs do not have restrictions on assets they invest in or on how they derive their income.

The first objective of my study is to determine whether pay compression is present in real estate companies' executive suites. Tables 1 and 2 present descriptive statistics on compensation structures.

Table 1

## Descriptive statistics of the REITs' structure of executive compensation

	Mean	Maximum	Minimum	Standard deviation
Panel A. REIT's dollar value of the components of CEO compensation				
Base	357,047*	658,524	151,200	107,121
Cash bonus	204,323*	628,280	23,333	150,856
Long-term compensation**	410,995	247,400	4,794	530,610
Total compensation	1,076,254	3,232,924	223,288	772,127
Panel B. REIT's dollar value of the components of the first Vice President compensation				
Base	288,803*	560,000	126,000	88,641
Cash bonus	185,562	750,000	21,458	151,038
Long-term compensation**	186,433	876,879	4,800	187,220
Total compensation	736,033	2,260,500	182,348	420,900
Panel C. REIT's dollar value of the components of the second Vice President compensation				
Base	252,882	450,000	138,600	72,077
Cash bonus	139,481	340,000	0	98,208
Long-term compensation**	166,242	850,631	0	184,709
Total compensation	624,339	2,243,625	138,600	413,845

Note: \* Mean test of difference in executive suite compensation is significant at % significance level.

\*\* The SNL definition of long-term compensation is annual cash, stock, or performance unit awards paid or credited to the executive during the fiscal year in accordance with multi-year performance goals. It includes restricted stock awards, long-term incentive plan awards, and other long-term compensation as reported in Proxy statements.

Table 2

## Descriptive statistics of the REOCs' structure of executive compensation

	Mean	Maximum	Minimum	Standard deviation
Panel A. REOC's dollar value of the components of CEO compensation				
Base	584,023*	716,625	370,000	155,887
Cash bonus	1,149,458*	1,920,000	0	841,120
Long-term compensation**	66,074	131,485	0	51,595
Total compensation	1,802,075	2,733,110	385,120	1,004,201
Panel B. REOC's dollar value of the components of the first Vice President compensation				
Base	384,926*	475,000	210,000	104,651
Cash bonus	616,487	1,094,667	0	437,833
Long-term compensation**	26,153	85,044	2,872	29,777
Total compensation	1,035,620	1,570,585	212,872	498,672
Panel C. REOC's dollar value of the components of the second Vice President compensation				
Base	321,406	482,246	0	173,748
Cash bonus	490,771	1,021,475	0	358,061
Long-term compensation**	20,189	79,292	0	9,292
Total compensation	859,259	1,488,160	124,959	463,471

Note: \* Mean test of difference in executive suite compensation is significant at % significance level.

\*\* The SNL definition of long-term compensation is annual cash, stock, or performance unit awards paid or credited to the executive during the fiscal year in accordance with multi-year performance goals. It includes restricted stock awards, long-term incentive plan awards, and other long-term compensation as reported in Proxy statements.

It appears that REOCs' executives enjoy higher base, cash bonus, and total compensation compared to their REIT counterparts. In addition, the evidence suggests that REITs' are more generous with executive stock-option compensation compared to REOCs'. The finding is puzzling, since REOCs potentially face a greater agency cost compared to REITs. I speculate that the market for top executives is tight with REOCs, private real estate sector and other industries competing for the same talent pool as REITs. In order to compete, companies have to design compensation programs that align the interest of management with that of shareholders. It appears that REITs use stock-option based compensation as a competitive compensation package in order to attract and retain management.

Also, I find a statistically significant difference in base and cash bonus compensation for REIT and REOC CEOs. However, I do not uncover an economically significant difference in compensation structure of CEO compared to the second and the third highest paid executives in real estate companies. It appears that there is a one-tier compensation in REIT and REOC executive suites.

Descriptive statistics of firms in my sample are shown in Table 3.

Table 3

Descriptive statistics of firm characteristics to explain the structure of executive compensation

	Mean	Maximum	Minimum	Standard deviation
Panel A. REITs				
Market-to-book value of assets (\$000,000)	980.5	1,154.8	721.3	206.2
Total Assets (\$000)	1,449,506	4,016,197	228,843	1,184,998
Inside Ownership, %	9.38	26.80	3.36	5.18
Institutional Ownership, %	43.63	76.61	10.67	19.73
FFO Volatility	5.12	5.24	4.85	0.10
Long Term Debt (\$000)	653,633	1,737,258	94,535	511,958
Short Term Debt (\$000)	54,247	314,685	1,521	74,857
Serves as both CEO and Chairman of the Board of Directors, %	55			
Panel B. REOCs				
Market-to-book value of assets (\$000,000)	1,409.1	1,592.1	1,120.8	217.6
Total Assets (\$000)	1,002,886	2,458,720	89,245	1,109,832
Inside Ownership, %	21.99	57.54	22.15	4.13
Institutional Ownership, %	57.94	81.66	11.48	20.01
FFO Volatility	5.17	5.21	5.13	0.03
Long Term Debt (\$000)	474,058	1,143,565	0	530,228
Short Term Debt (\$000)	32,268	102,118	3,349	38,311
Serves as both CEO and Chairman of the Board of Directors, %	52			

REITs average \$1.45 billion in total assets compared to REOCs – \$1.00 billion. REITs' capital expenditures comprise 87% of total assets vs. REOCs' 51% of total assets. REOC mean institutional ownership is higher compared to REIT (57.94% vs. 43.63%) with inside ownership 21.99% for REOCs and 9.38% for REITs. The examination of real estate companies' capital structure suggests that REITs and REOCs rely equally on long- and short-term debt (long-term debt/total assets is 47% and short-term debt/total assets is 3%).

It appears that almost 55% of REIT CEOs serve as both CEO and Chair of the Board of Directors vs. 52% for REOCs. I also document that REIT and REOC cash flow from operations volatility is similar (5.12 vs. 5.17). Table 4 presents a correlation matrix of the variables.

Table 4

## Correlation matrix

Variable	Book-to-market value of Assets	Total Assets	Inside Ownership	Inst. Ownership	CF Volatility	LTD	STD
Panel A. REITs							
Book-to-market value of assets	1.00	0.97	-0.28	0.40	0.15	0.93	0.78
Total Assets (\$000)	0.97	1.00	-0.31	0.45	0.15	0.78	0.98
Inside Ownership, %	-0.28	-0.31	1.00	-0.57	-0.08	-0.30	-0.21
Institutional Ownership, %	0.40	0.45	-0.57	1.00	0.09	0.25	0.45
FFO Volatility	0.15	0.15	-0.08	0.09	1.00	0.14	0.17
Long Term Debt (\$000)	0.93	0.78	-0.30	0.25	0.14	1.00	0.17
Short Term Debt (\$000)	0.78	0.98	-0.21	0.45	0.17	0.17	1.00
Panel B. REOCs							
Book-to-market value of assets	1.00	-0.03	-0.37	0.42	-0.12	-0.00	-0.01
Total Assets (\$000)	-0.03	1.00	-0.31	0.45	0.14	0.92	0.64
Inside Ownership, %	-0.37	0.08	1.00	-0.57	0.08	0.06	-0.01
Institutional Ownership, %	0.42	0.04	-0.37	1.00	0.08	0.07	0.02
FFO Volatility	-0.12	0.14	0.08	0.08	1.00	0.14	0.14
Long Term Debt (\$000)	-0.00	0.92	0.06	0.07	0.14	1.00	0.14
Short Term Debt (\$000)	-0.01	0.64	-0.01	0.02	0.14	0.56	1.00

## 3.3. Discussion of empirical results

To test my hypotheses, I estimate regressions of the components of executive compensation as functions of proxies for investment opportunities, monitoring mechanism, efficient risk sharing, ownership structure, capital structure, self-management, and CEO/Chair duality. I divide the incentive compensation in base, cash bonus, and long-term compensation and express each in absolute terms and as a percentage of total compensation. To control for a possible multicollinearity between compensation and firm size, I scale the dependent and independent variables by total assets, and estimate the compensation regressions on per dollar of assets basis.

The results of the regression analysis are presented in Tables 5 and 6.

Table 5

## REITs' executive compensation structure

	Base <sup>1</sup>	% Base	Cash <sup>1</sup> Bonus	% Cash Bonus	Long-term <sup>1</sup> Compensation	% Long-term Compensation
1	2	3	4	5	6	7
Panel A. CEO						
Intercept	0.028 (0.872)	0.313 (0.717)	0.080 (0.534)	0.144 (0.768)	-0.087 (0.781)	0.468 (0.634)
CEO duality	0.028*** (0.000)	0.006* (0.074)	0.087** (0.026)	0.102* (0.063)	0.026* (0.081)	0.002* (0.088)
Inside ownership	-1.275*** (0.004)	-0.015*** (0.000)	-2.471 (0.550)	-0.434 (0.783)	-1.056 (0.267)	-0.004 (0.899)
Institutional ownership	-3.793*** (0.002)	-0.006* (0.093)	-2.807*** (0.010)	-0.295** (0.046)	-3.656** (0.043)	0.170 (0.828)
Long-term debt <sup>1</sup>	0.170 (0.525)	-0.001 (0.431)	0.322 (0.124)	-0.799 (0.920)	0.556 (0.257)	-0.002 (0.876)
Short-term debt <sup>1</sup>	1.217 (0.693)	-0.002 (0.316)	0.328 (0.237)	0.189 (0.858)	0.251 (0.734)	-0.008 (0.722)

Table 5 (continuous)

1	2	3	4	5	6	7
Investment opportunities	-0.193 (0.196)	0.003 (0.971)	-0.397 (0.748)	0.208 (0.659)	-0.579 (0.819)	-0.004 (0.544)
FFO volatility	-0.216* (0.090)	-0.2289** (0.007)	-0.278** (0.017)	-0.101*** (0.002)	0.436** (0.038)	0.008* (0.063)
Self-management	0.147** (0.037)	0.004** (0.013)	0.083** (0.029)	0.042* (0.083)	-0.066 (0.626)	-0.026 (0.547)
Adj.R <sup>2</sup>	0.73	0.87	0.25	0.08	0.11	0.06
Panel B. 1st Vice President						
Intercept	-0.098 (0.264)	-0.139 (0.867)	-0.030 (0.711)	0.379 (0.218)	-0.298 (0.997)	-0.121 (0.633)
CEO duality	0.032* (0.062)	0.059* (0.075)	0.048* (0.065)	0.111* (0.080)	0.099* (0.079)	0.096* (0.069)
Inside ownership	-2.046*** (0.000)	-0.017*** (0.000)	-1.773* (0.089)	-0.519* (0.097)	-2.185* (0.075)	-0.087** (0.042)
Institutional ownership	-2.143*** (0.004)	-0.224* (0.077)	-1.928*** (0.006)	-0.872* (0.063)	-4.237*** (0.007)	-0.214** (0.033)
Long-term debt <sup>1</sup>	0.403 (0.315)	0.532 (0.676)	0.202 (0.112)	-0.542 (0.105)	0.717 (0.827)	0.568 (0.149)
Short-term debt <sup>1</sup>	0.604 (0.130)	-0.193 (0.296)	0.289 (0.111)	-0.125 (0.792)	0.654 (0.114)	0.073 (0.217)
Investment opportunities	-0.110 (0.126)	0.216 (0.750)	-0.317 (0.626)	-0.132 (0.441)	-0.279 (0.847)	-0.134 (0.501)
FFO volatility	-0.144*** (0.004)	-0.106** (0.047)	-0.317* (0.062)	-0.133*** (0.001)	0.070** (0.011)	0.996** (0.034)
Self-management	0.054*** (0.004)	0.101* (0.072)	0.056* (0.100)	0.199** (0.025)	0.148* (0.067)	0.029** (0.012)
Adj.R <sup>2</sup>	0.84	0.60	0.25	0.53	0.13	0.25
Panel B. 2nd Vice President						
Intercept	-0.116 (0.198)	0.102 (0.772)	-0.082 (0.242)	0.270 (0.505)	-0.035 (0.102)	-0.221 (0.242)
CEO duality	0.099*** (0.009)	0.320** (0.044)	0.381* (0.084)	0.374** (0.030)	0.113** (0.022)	0.130* (0.079)
Inside ownership	-1.913*** (0.000)	-0.013*** (0.000)	-0.668* (0.090)	-0.167*** (0.009)	-1.138*** (0.003)	-0.116* (0.067)
Institutional ownership	-2.460*** (0.002)	-0.002* (0.096)	-2.532*** (0.000)	-0.390*** (0.000)	-4.013*** (0.006)	-0.683*** (0.000)
Long-term debt <sup>1</sup>	0.341 (0.793)	-0.820 (0.880)	0.215 (0.881)	-0.408 (0.705)	0.648 (0.475)	0.513 (0.976)
Short-term debt <sup>1</sup>	0.679 (0.341)	-0.161 (0.682)	0.420 (0.379)	-0.113 (0.705)	1.244 (0.269)	0.762 (0.798)
Investment opportunities	-0.040 (0.101) (0.016)	-0.119 (0.650) (0.027)	-0.844 (0.284) (0.000)	-0.862 (0.385) (0.030)	-0.865 (0.314***) (0.003)	-0.466 (0.203***) (0.000)
Self-management	0.068* (0.082)	0.695* (0.069)	0.033** (0.045)	0.050** (0.036)	0.053 (0.102)	0.234 (0.133)
Adj.R <sup>2</sup>	0.75	0.68	0.33	0.64	0.20	0.27

Note: p-value is listed in parenthesis. \*\*\* – significant at 1% significance level; \*\* – significant at 5% significance level; \* – significant at 10% significance level. % Base, % Cash Bonus, and % Long-term compensation are calculated as compensation type divided by Total compensation; 1 variable is scaled by TA.

Table 6

## REOCs' executive compensation structure

	Base <sup>1</sup>	% Base	Cash <sup>1</sup> Bonus	% Cash Bonus	Long-term <sup>1</sup> Compensation	% Long-term Compensation
Panel A. CEO						
Intercept	-0.490 (0.488)	-0.503 (0.351)	-0.163 (0.853)	-0.257 (0.728)	-0.465 (0.881)	-0.349 (0.929)
CEO duality	0.137* (0.083)	0.153** (0.048)	0.640** (0.034)	0.272* (0.061)	0.147*** (0.003)	0.183* (0.075)
Inside ownership	-0.800*** (0.000)	-0.540*** (0.000)	-1.873*** (0.000)	-0.573** (0.046)	-1.807* (0.073)	-0.338** (0.041)
Institutional ownership	-4.435*** (0.000)	-0.292*** (0.000)	-5.131* (0.078)	-7.371*** (0.001)	-3.315*** (0.000)	-0.463*** (0.001)
Long-term debt <sup>1</sup>	-0.111** (0.027)	-0.190*** (0.000)	0.539 (0.741)	0.652 (0.998)	-0.231 (0.969)	-0.208 (0.781)
Short-term debt <sup>1</sup>	-0.632 (0.696)	0.140 (0.964)	-3.462 (0.559)	-0.208 (0.633)	-0.673 (0.732)	-0.354 (0.886)
Investment opportunities	0.305 (0.469)	0.888 (0.274)	0.895 (0.471)	0.205 (0.984)	0.370 (0.378)	0.491 (0.352)
FFO volatility	-3.889*** (0.000)	-0.188*** (0.000)	-6.600*** (0.000)	-3.379*** (0.000)	5.733** (0.038)	0.858* (0.078)
Self-management	0.485 (0.342)	-0.147 (0.137)	0.370** (0.018)	0.442*** (0.001)	0.195 (0.801)	-0.982 (0.920)
Adj.R <sup>2</sup>	0.74	0.73	0.79	0.74	0.21	0.33
Panel B. 1st Vice President						
Intercept	-0.059 (0.877)	0.838 (0.896)	0.108 (0.877)	0.264 (0.648)	0.520 (0.865)	-0.525 (0.753)
CEO duality	0.079* (0.059)	0.181* (0.060)	0.350** (0.036)	0.359 (0.071)	0.295*** (0.008)	0.531* (0.082)
Inside ownership	-4.730*** (0.000)	-0.730*** (0.000)	-1.493*** (0.000)	-1.497*** (0.000)	-0.303** (0.049)	-0.877** (0.006)
Institutional ownership	-4.026*** (0.000)	-0.538*** (0.000)	-1.911* (0.086)	-1.995* (0.066)	-0.137** (0.014)	-0.353** (0.044)
Long-term debt <sup>1</sup>	-0.111*** (0.009)	-0.323 (0.779)	-0.265* (0.077)	-0.357 (0.721)	-0.106* (0.098)	1.033 (0.463)
Short-term debt <sup>1</sup>	-0.013* (0.097)	-0.103 (0.833)	-0.676* (0.070)	-0.196 (0.663)	-0.781 (0.743)	-0.501 (0.371)
Investment opportunities	-0.187 (0.996)	-0.259 (0.771)	0.150 (0.861)	-0.194 (0.802)	-0.302 (0.941)	0.114 (0.242)
FFO volatility	-2.274*** (0.000)	-0.243*** (0.000)	-5.111*** (0.000)	-5.107*** (0.000)	2.422*** (0.000)	3.137*** (0.001)
Self-management	2.179 (0.867)	0.438 (0.479)	0.467 (0.679)	0.433 (0.266)	0.135 (0.899)	0.829 (0.648)
Adj.R <sup>2</sup>	0.86	0.82	0.76	0.30	0.39	0.26
Panel C. 2nd Vice President						
Intercept	0.873 (0.856)	-0.737 (0.114)	-0.072 (0.878)	-0.248 (0.748)	-0.275 (0.899)	0.306 (0.958)
CEO duality	0.212* (0.074)	0.503* (0.095)	0.253*** (0.001)	0.190* (0.073)	0.102* (0.051)	0.268** (0.044)
Inside ownership	-3.590* (0.058)	-0.698*** (0.000)	-0.653*** (0.000)	-0.252* (0.099)	-1.338* (0.100)	-0.409* (0.062)

Table 6 (continuous)

	Base <sup>1</sup>	% Base	Cash <sup>1</sup> Bonus	% Cash Bonus	Long-term <sup>1</sup> Compensation	% Long-term Compensation
Institutional ownership	-0.312** (0.035)	-0.169*** (0.001)	-1.973*** (0.004)	-0.100* (0.091)	-2.063*** (0.002)	-0.473*** (0.007)
Long-term debt <sup>1</sup>	-0.238*** (0.000)	0.139 (0.605)	-0.842** (0.032)	-0.356 (0.798)	-0.781** (0.044)	-0.146 (0.890)
Short-term debt <sup>1</sup>	-0.277* (0.041)	-0.174 (0.406)	-0.546* (0.074)	-0.130 (0.817)	-1.084 (0.413)	-0.278 (0.430)
Investment opportunities	0.823 (0.163)	0.532* (0.081)	0.140 (0.734)	-0.176 (0.873)	0.267 (0.290)	0.916 (0.174)
FFO volatility	-0.235*** (0.000)	-0.150*** (0.000)	-2.560*** (0.000)	-0.281*** (0.004)	0.199* (0.084)	0.095** (0.014)
Self-management	-0.230 (0.834)	-0.260 (0.421)	0.244 (0.874)	0.456 (0.901)	0.343 (0.776)	0.193 (0.878)
Adj.R <sup>2</sup>	0.85	0.86	0.70	0.72	0.22	0.24

Note: p-value is listed in parenthesis. \*\*\* – significant at 1% significance level; \*\* – significant at 5% significance level; \* – significant at 10% significance level. % Base, % Cash Bonus, and % Long-term compensation are calculated as compensation type divided by Total compensation; <sup>1</sup> variable is scaled by TA.

The monitoring proxy (outside block stock ownership) is negatively related to all three categories of REIT and REOC executive compensation (significant at 10% or better level), suggesting a substitute relation. Also, evidence suggests that real estate companies' top executives with higher stock ownership require less compensation to align their interests with shareholders (the inside block stock ownership estimated coefficient is negative and statistically significant at 10% level or better).

The coefficient of FFO volatility for long-term compensation is positive and significant. Consistent with the prediction, REIT and REOC executive long-term compensation is positively related to volatility of funds from operation. The estimated coefficients for base and cash bonus compensation are negative and statistically significant, as well. The empirical findings suggest that real estate firms avoid tying manager's compensation to "noisy" performance measure – funds from operation volatility, and instead use efficient contracting and include option-based compensation, which provide managers with incentives but limit their downside risk.

I find support for the agency cost of debt hypothesis for REOCs while REITs show no relationship. Empirical evidence indicates that REOC capital structure serves to lessen costly equity-debt agency conflict because the estimated coefficient of the ratio of long- and short-term debt to total equity is negative and statistically significant at 10% or better level. These relations are more pronounced for the second and the third highest paid executives in REOCs. I find support for the John and John (1993) and the Ryan et al. (2001) findings that long-term compensation is negatively related to the leverage ratio. However, for REOC CEOs, the compensation and equity-debt relations are less pronounced (the estimated coefficient of long-term debt is negative and statistically significant at 5% or better level for CEO base compensation). At the same time, I do not find any relation between REITs' capital structure and incentive package.

I find that self-management does not affect the REOCs' executive compensation. Only two of REOCs (Tarragon Realty Investors and Transcontinental Realty Investors) are externally managed. The estimated coefficient for REITs self-management is positive and statistically significant at the 10% level or better for base and cash bonus compensation. I conclude that internally managed REITs' executives enjoy a favorable compensation design.

Finally, my empirical evidence suggests that CEO/Chair duality leads to higher incentive compensation (short- and long-term) in top echelon management of real estate companies. REIT and REOC executives are awarded higher compensation contracts when the CEO is also the Chairman of the Board of Directors. The estimated coefficients are positive and statistically significant at 10% level or better.

#### 4. Conclusion

Economic theory suggests that since managers have the incentives and the opportunity to deviate from policies that maximize shareholders' wealth, firms should tie executive compensation to firm's market or/and accounting performance measure. Moreover, previous empirical evidence uncovers structural differences in executive compensation across and within industries and companies depending on types of agency problems prevalent in the firm, presence of other incentives, and the ability to monitor manager's actions.

In this paper, I analyze top echelon managerial compensation in the real estate industry as a function of real estate company attributes using a sample of equity REITs and REOCs. Both types of companies operate in the same industry; however, REOCs face few restrictions on their operating and investment activities, as well management concentration compared to REITs. The REOC format grew slowly over the years, but become more viable in recent times.

Consistent with agency theory, I find that incentive compensation structure is adjusted according to the firm's specific attributes. I observe economically insignificant differences in the pay structure among top executives in real estate companies. It appears that REITs and REOCs have a one-tier compensation structure with REOCs' relying on cash bonuses and REITs leaning more towards long-term equity based incentives in determining executives' pay-for-performance package.

I also document that both companies tie their executives' benefit packages to a "noisy" variable – fund from operation. High variability of funds from operation makes it difficult to monitor managerial actions and at the same time expose managers to greater risk since results, even if they are not related to manager's decisions, may be attributed to the manager. In this case, managers have incentives to minimize risk at the expense of shareholders. My findings suggest that consistent with the investment opportunities hypothesis, REITs and REOCs mitigate monitoring and agency costs through executive compensation contracts.

My results also shed light on the relation between REOC capital structure and incentive compensation structure. Consistent with John and John (1993) proof that an optimal managerial compensation has to align managerial incentives with shareholders interest and minimize the agency cost of debt, I find negative relationships between long- and short-term debt commitments and REOC executives' compensation. These results contribute to our understanding of the role of capital structure and the agency cost of debt in determining compensation policy.

Additionally, I find a negative relation between REIT and REOC inside stock ownership, institutional ownership and executive compensation. These findings suggest that the incentives of managers who own large amounts of stock are already aligned with shareholders and that these managers require less alignment via incentive compensation. The negative relation with outside stock blockholders supports the notion that there is a tradeoff between incentive alignment and external monitoring.

Furthermore, I determine that self-managed REITs' managers enjoy a favorable compensation design. Finally, I provide some evidence on the role of CEO/Chair of the Board of Directors duality. The uncovered positive relations between CEO/Chair duality and executive compensation support the "passing of the baton" hypothesis introduced by Brickley et al. (1997) who find that dual CEOs receive more total compensation. My findings suggest that CEO duality awards more compensation not only to the CEO but also to the second and third highest paid company's executive in real estate industry.

#### Reference

1. Ambrose, B.W. and P. Linneman. REIT organizational structure and operating characteristics// *Journal of Real Estate Research*, 2001, No. 21, pp. 141-162.
2. Baber, W.R., Janakiraman, S., and S. King. Investment opportunities and the structure of executive compensation // *Journal of Accounting and Economics*, 1996, No. 21, pp. 297-318.
3. Brickley, J., Coles, J., and Jarrell G. Leadership structure: separating the CEO and chairman of the board // *Journal of Corporate Finance*, 1997, No. 3, pp. 189-220.

4. Cannon, S.E. and S.C. Vogt. REITs and their management: an analysis of organizational structure, performance and management compensation // *Journal of Real Estate Research*, 1995, No. 10(3), pp. 297-317.
5. Capozza, D. and P. Seguin. Debt, agency and management contracts in REITs: The external advisor puzzle // *Journal of Real Estate Finance and Economics*, 2000, No. 20, pp. 91-116.
6. Crain, J.M. Cudd, and C. Brown. The impact of the Revenue Reconciliation Act of 1993 and institutional ownership on the pricing structure of equity REITs // *Journal of Real Estate Research*, 2000, No. 19, pp. 275-285.
7. DeFusco, R., Johnson, R., and T. Zorn. The effect of executive stock option plans on stockholders and bondholders // *Journal of Finance*, 1990, No. 45, pp. 617-627.
8. Delcours, N., and R. Dickens. REIT and REOC systematic risk sensitivity // *Journal of Real Estate Research*, 2004, No. 26 (3), pp. 237-254.
9. Demsetz, H. and K. Lehn. The structure of corporate ownership: causes and consequences // *Journal of Political Economy*, 1985, No. 93, pp. 1155-1177.
10. Downs, D. The value in targeting institutional investors: Evidence from the five-or-fewer rule change // *Real Estate Economics*, 1998, Vol. 26, pp. 613-649.
11. Eisenhardt, K. Agency theory: an assessment and review // *Academy Management Review*, 1988, Vol. 14, pp. 57-74.
12. Gaver, J.J. and K.M. Gaver. Additional evidence on the association between the investment opportunity set and corporate financing, dividend, and compensation policies // *Journal of Accounting and Economics*, 1993, No. 16, pp. 125-160.
13. Ghosh, C.R., and C.F. Sirmans. Board independence, ownership structure, and performance: Evidence from Real Estate Investment Trusts // *Journal of Real Estate Finance and Economics*, 2003, No. 26 (2/3), pp. 287-318.
14. Golec, J. Compensation policies and financial characteristics of real estate investment trust // *Journal of Accounting and Economics*, 1994, No. 17, pp. 117-205.
15. Hardin, W.G. Executive compensation in EREITs: EREIT size is but one determinant // *Journal of Real Estate Research*, 1998, No. 16(3), pp. 401-409.
16. Hess, R.C., R. McAllister, and Y. Liang. Hotel property investing: an overview // <http://www.prudential.com>, 2001.
17. Holmstrom, B. Moral hazard and observability // *Bell Journal of Economics*, 1979, No. 14, pp. 74-91.
18. Holmstrom, B., and P. Milgrom. Aggregation and linearity in the provision of intertemporal incentives // *Econometrica*, 1987, No. 55, pp. 303-328.
19. Howe, J.S. and J.D. Shilling. REIT advisor performance // *AREUEA Journal*, 1990, No. 18, pp. 479-500.
20. Hsieh, C., P. Poon, and P. Wei. An analysis of REIT financing decision // LSU at Shreveport, 2000, Working paper.
21. Jensen, M. and W. Meckling. Theory of the firm: managerial behavior, agency cost and ownership structure // *Journal of Financial Economics*, 1976, No. 3, pp. 305-360.
22. Jensen, M. and K. Murphy. Performance pay and top management incentives // *Journal of Political Economy*, 1990a, No. 98, pp. 225-264.
23. Jensen, M. and K. Murphy. CEO incentives – it's not how much you pay, but how // *Harvard Business Review*, 1990b, No. May-June, pp. 138-153.
24. John, K. and T. John. Top-management compensation and capital structure // *Journal of Finance*, 1993, No. 48, pp. 949-974.
25. Mueller, G.R. REIT size and earnings growth: Is bigger better, or a new challenge? // *Journal of Real Estate Portfolio Management*, 1998, No. 4, pp. 149-157.
26. O'Reilly, C., Wade, J., and Pollock, T. Overpaid CEOs and underpaid managers: Equity and executive compensation // Stanford University working paper, 1998.
27. Reeder, P.J. "Overview of the SNL DataSource – Real Estate in Public Eye." *Journal of Real Estate Literature* 9(2) (2001), 229-246.

28. Ryan, H.E., Jr. and R.A. Wiggins, III. The influence of firm- and manager-specific characteristics on the structure of executive compensation // *Journal of Corporate Finance*, 2001, No. 7, pp. 101-123.
29. Ross, S.A. The determination of financial structure: The incentive-signaling approach // *The Bell Journal of Economics*, 1977, Spring, pp. 23-40.
30. Smith, C.W., Jr. and R.L. Watts. The investment opportunity set and corporate financing, dividend, and compensation policies // *Journal of Financial Economics*, 1992, No. 32, pp. 263-292.
31. Vincent L. The information content of fund from operation (FFO) for real estate investment trusts (REITs) // *Journal of Accounting and Economics*, 1999, No. 26, pp. 69-104.
32. Wang, K., J. Erickson, G. Gau, and Su Han Chan. Market microstructure and real estate returns // *Real Estate Economics*, 1995, No. 23, pp. 85-100.