

Do Incentives for REIT Executives Improve Efficiency?

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Abstract

Using 1998-2005 EXECUCOMP data on Real Estate Investment Trust (REIT) CEOs, this study addresses some of the issues that arise when modeling CEO incentive-based compensation. The purpose is to investigate how profit efficiencies are impacted by CEO compensation and their composition of pay packages. Since a disproportionate amount of a REIT's expenses are executive compensation related, this issue is particularly important. Much of the literature focuses on estimating the impact of firm and CEO characteristics on CEO compensation. We consider the more direct question of whether total CEO compensation or the mix of compensation affects profit efficiency.

1. Introduction

There has been much research on incentive based compensation and firm performance measures; particularly since the 1980's. Research shows that executive compensation can be as much as 400 times the earnings of their workers. Additionally research shows that incentive based executive compensation improves performance of companies as measured by sales revenues, Economic Value Added (EVA), or the ratio of net income to share price. In the case of REIT CEOs there is little documented evidence linking any measure of performance and executive's compensation. Many question whether CEOs are worth the massive incentive-based packages. However, higher pay may be justified if it is needed to align CEO incentives with the goal of maximizing shareholder wealth. For example, Jensen and Murphy (1990) find that CEO's receive only \$3.25 of shareholder wealth created. Hall and Liebman (1998) show that CEO compensation is far more sensitive to firm performance if one chooses other measures than shareholder wealth. They also find pay has become more sensitive over time with increases in the proportion of incentive-based compensation over time. In fact, the average CEO in our sample of Real Estate Investment Trusts is paid nearly 70.5% in incentive-based compensation. Most papers in the CEO literature focus on measuring the sensitivity of CEO compensation to attributes of the firm to test theories of optimal compensation.

The majority of the prior literature implicitly assumes causality runs from firm performance to CEO pay. However, the argument in favor of option packages and high pay hinges on the fact that higher pay also affects firm performance. This paper focuses on the impact of the executive compensation package on profitability of the firm. In particular, we seek to analyze the impact of increasing the total executive compensation and the proportion of executive salaries in incentives on net income of REITs.

In theory, larger incentive packages could either increase or decrease the net income of REITs. The incentives directly increase the cost of the REIT which would reduce net income. However, the intended consequences of the compensation rewards are to enhance productivity of the executive, thus raising profits. The key question for our study consists of which impact dominates.

What result might be expected from this exercise and how should the results be interpreted? Basic economic theory provides some intuition. Observed salaries should be the result of profit and shareholder wealth maximizing behavior. Thus, salaries should be set by the firm to attract and retain key executives and incentive structures should be used to maximize firm performance.

This study uses a stochastic profit frontier to measure how close a CEO is to the best-practices in the industry. By allowing mean inefficiency to differ across firms based on total CEO compensation or incentive structure, we seek to more directly investigate the impact of total and mix of CEO compensation on profits of the firm. Overall, this study finds little or no evidence, regardless of the definition of high incentive-based compensation, that incentive-based compensation packages produce more profit efficient CEOs. Although some would suggest that this result is surprising, it may simply suggest that REIT CEOs are paid efficiently conditional on their firm environment. Each REIT's corporate environment is different and each REIT may have differing objectives for long term versus short term decisions. These differences must be taken into account when designing the mix of compensation package. If the results had shown significant differences between compensation packages, then that might suggest that CEO package mix should be changed for some firms. Disparities between profit efficiency shouldn't exist in the long term if markets are efficient. The evidence that we present indicate that a world

where one size fits all doesn't exist. Additionally, we find little evidence that the level of compensation, whether it be incentive-based or not, affects the level of net income at all.

The paper proceeds as follows. Section 2 provides discussion the existing research on REIT efficiency and glimpse of the vast literature on executive compensation. Section 3 describes the data collected from the Execucomp data base and elaborates on the different specifications of high incentive based compensation. Section 4 presents the empirical results and Section 5 concludes.

2. Literature Overview

Executive compensation directly increases costs. However the purpose of the incentive-based compensation is to increase CEO productivity which may increase revenues or decrease costs. The fact that net income is affected by CEO pay directly, but that CEO pay may indirectly affect net income is a cause for concern. Most of the models of executive compensation use some form of net income as an explanatory variable and CEO compensation as the dependent variable, implicitly assuming causality runs in a single direction from firm performance to CEO pay.

Principle agency theory suggests that carefully designed compensation packages motivate managers with the intention of aligning shareholder objectives with the managers' objectives. Along those lines, Jensen and Murphy (1990a) find that firm stock returns may be impacted by executive stock option awards in a positive, but economically negligible way. They suggest that CEOs are paid like bureaucrats.

Hall and Liebman (1998) find that the relationship between pay and performance from 1980-94 is greater and economically significant. The difference in the economic value is

attributed to the differences in the mix of the compensation schemes and the fact that the previous studies used firms that had primarily cash based pay. Murphy (1985) concludes that there is a relationship between compensation and performance. However, the literature is not in agreement concerning the link between pay and stock returns. One potential reason for this disagreement could be due to differences in the definition of pay. Newer models that include options or bonuses in their computation of pay may by definition lead to at least some relationship between pay and stock returns (and to some extent net income). Older models that disproportionately use cash based compensation or salary do not embed this definitional relationship between net income and compensation. Several papers focus on industry specific relationships. Smith and Watts (1992) find that the banking industry faces fewer growth opportunities than other industries. They find that high growth banks tend to use more stock-based compensation while low growth banks use more cash-based pay. Hubbard and Palia (1995) study pay-for-performance in banks and find that bank CEOs that operate with interstate branches have higher pay-for-performance. Houston and James (1995) find that bank CEOs receive less cash and stock based compensation than their CEO counterparts in other industries. Watts (1992) find that high growth firms use more stock-based pay. Meanwhile, Gaver and Gaver (1993) find that high growth firms use more stock option awards.

Only a few papers focus on REITs. Hardin (1998) provides some evidence that manager pay rises when dividend income falls. Chopin et. al. (1995) and Pennathur and Shelor (2002) find some relationship between pay and stock return as measured by funds from operations. Scott et. al. (2001) find that the size of the REIT is positively related to total compensation and incentive compensation is a function of stock return. Pennathur, Gilley and Shelor (2005) find evidence that is consistent with the theories of stock-based compensation by showing that

increases in growth opportunities, funds from operation, and earnings per share lead to larger options rewards for REIT CEOs. Pennathur, Gilley and Shelor (2005) also find that CEO pay rises with greater stock based compensation or greater volatility of returns.

We find only one paper has attempted the problem modeling profits rather than CEO compensation. Baek and Pagan (2002) use panel data on S&P 1500 firms and a traditional stochastic frontier framework to study the relationship between executive compensation and technical productive efficiency. They find that the level of CEO compensation is positively related to technical efficiency. However the type of compensation mattered. Annual salary, restricted stock and stock options as a percentage of their compensation are each negatively related to technical efficiency.

Along the lines of the traditional approach to link executive compensation and performance measures, Koshal, Parsad and Jain (1977) show that executive compensation depends on sales and profits. However other early research by Lewellen and Huntsman (1970) find that profits and market capitalization are more important in determining executive compensation than is sales. Many other studies find themselves with opposing views. Posen (1990) finds that both market and accounting measures do little to explain executive compensation. Guy (2000) provides evidence that there is a relationship between executive compensation and accounting and shareholder return.

When looking at executive compensation from an agency theory point of view, Holmstrom (1992) finds that firm size should negatively affect compensation sensitivity. Larger firms exhibit more sensitivity executive pay to performance measures. Wright (2003) uses a moral hazard framework and finds that firms with greater marginal benefit of effort implement schemes that induce greater manager effort and less X-efficiency. They find that the manager

selection effect unambiguously increases internal firm efficiency. Garen (1994) suggests that the base pay performance is negatively related to total assets. He also argues that this result leads researchers to believe that the size of the firm reduces CEO incentives to work harder and smarter.

Executive pay seems to be dependent on industry as well. Martinez and Guadalupe (2004) show that more competition in the industry increases pay sensitivity of managers. Hubbard and Palia (1995) find that executives of financial institutions' are paid more than those in other sectors. Jaskow and Rose (1996) and Murphy (1998) find that executives in regulated industries like electric utilities are paid less relative to more competitive sectors.

In estimating efficiency, Lewis, Springer and Anderson (2002) examine the impact of the type of REIT management on operating efficiency by separating the data into self-managed REITs (λ_{self}) and externally managed REITs (λ_{ext}). Since there is a trend toward REITs moving to self-management, this would lead researcher to believe that self-management must yield greater efficiencies. In prior research, both Bers and Springer (1998b) and Anderson, Springer, Fok, et al. (2001) find evidence that external management decreases REIT efficiency. Lewis, Springer and Anderson show self-managed REITs (λ_{self}) are more efficient in 1995 and 1996, but that externally managed REITs (λ_{ext}) are more efficient in 1997. These results hold consistent irrespective of whether total assets or market capitalization as the measure of output is used. This result provides some contrasting evidence against the previous REIT efficiency research.

Much research has been done in the area of stochastic frontier analysis within a real estate context (Anderson, Lewis, and Springer (2000), Anderson, Springer, Fok, and Webb (2001) and Ambrose and Pennington-Cross (2000)). These studies traditionally estimate a long-run average cost curve. Based on the parameters of that function, they assess the firm's position

relative to that average cost curve. Using this information, these papers were able to estimate X-efficiency, industry efficiency and scale efficiency.

Berger, Hunter and Timme (1993) suggest that the use of an X-efficiency method to determine the presence of economies of scale is important because scale results are only meaningful if a firm is operating on its efficient frontier. Berger suggests using profit frontiers rather than cost and production frontiers because a profit frontier gives a more general sense of the manager's efficiency. In profit frontiers, both sales revenue and cost efficiencies are taken into consideration.

Other studies like Anderson, Springer, Fok and Webb (2001) use data envelopment analysis (DEA) to estimate economies of scale and X-efficiency for REITs from 1992 through 1996. Their results show that REITs are very inefficient with overall measures ranging from 44.1 percent to 60.5 percent inefficient. They also show most REITs to be operating at increasing returns to scale. Their results show that increases in both property type diversification and leverage decrease REIT efficiency performance, and that self-management increases cost efficiency among REITs. The problem with this research is that DEA classifies any deviation from the efficient frontier surface as inefficiency. Thus, DEA does not allow deviations from the frontier to be measured as random error, but classifies all deviations from the frontier as inefficiency. It is also the case that DEA is very sensitive to model specification and outlying observations.

Previous studies have shown that the magnitude of REIT efficiency estimates differ substantially when other factors affecting REIT costs are controlled for in the model. This study is the first to use a profit frontier to estimate profit efficiency—a measure incorporating both the effectiveness of managers to minimize costs and to maximize revenues simultaneously.

Secondly, this paper would be the first to include executive compensation measures into the frontier estimation. Incorporating executive compensation in to the frontier allows researchers to estimate the marginal impact of the compensation on profit. Managers whose compensation is more costly than the additional revenue created by the additional work effort would be deemed suboptimal or allocatively inefficient.

3.1 The Stochastic Frontier Model for REIT Profit Frontier Model

Bauer (1990) surveys the large literature on stochastic frontier models first introduced by Aigner, Lovell, and Schmidt (1977) and Meeusen and van den Broeck (1977). We specify the profit frontier to follow a log-log functional form.

Extending the model specification of Bers and Springer (1997,1998a, 1998b) and Lewis, Springer, and Anderson (2002) the basic log-log profit frontier model is:

$$(1) \quad \ln \Pi_i(Q_i) = b_o + b_1 \ln Q_i + b_2 \ln Q_i^2 + b_3 \ln Q_i^3 + b_4 \sum_{t=1998}^{2005} Dum_{it} + v_i - z_i$$

where Π_i denotes the net income available to stockholders of firm i , which depends on a REIT's output, Q_i . We allow for curvature in the frontier by including squared and cubic terms.

Following Lewis, Springer and Anderson (2002), total assets are defined as the output of a REIT.

The composed error term consists of a symmetric error term, v_i that captures measurement error and a non-negative error, z_i . As in Lewis, Springer and Anderson (2002), the two-sided error

term is distributed normally, $v_i \sim IID N(0, \sigma^2)$ for all firms. For the non-negative error term, z_i ,

follows an exponential distribution with shape parameter λ . The parameter λ defines both the mean and the variance of the exponential distribution and directly provides a measure of

inefficiency. Following the Lewis and Anderson (1999) and Lewis, Springer and Anderson

(2002) methodology, we allow λ to take one of two values conditional on firm pay

characteristics, λ_1 for firms classified as having lower incentives as a proportion of total pay and λ_2 for those offering classified as offering a high portion of salaries as incentives.

The priors complete our statistical model. Following Koop, Osiewalski, and Steel (1994), a flat prior distribution function for β is chosen. λ_j is the shape parameter that defines the mean of the exponential density function, where j represents the REIT type. Fernandez, Osiewalski, Steel (1998) show that an informative prior for λ_j^{-1} and σ^2 is required to ensure that the posterior is proper, so we choose gamma priors for all λ_j^{-1} and σ^{-2} . The full priors are then:

$$\begin{aligned} \pi(\beta) &\propto 1 \\ (3) \quad \pi(\lambda^{-1}) &= f_G(\lambda^{-1} | 1, -\ln(r^*)) \\ \pi(\sigma^{-2}) &= f_G\left(\sigma^{-2} | \frac{\tau}{2}, \frac{s_p^2}{2}\right) \end{aligned}$$

where $f_G(\cdot | \nu_1, \nu_2)$ denotes a gamma density with mean ν_1/ν_2 and variance ν_1/ν_2^2 .

Note that, $r_{ji} = \exp(-z_{ji})$ measures the efficiency of the i th firm, type j , relative to a 100 percent efficient firm facing the same input prices, and r_j^* is the prior mean for the group type's efficiency. We set $r_i = 0.875$ for all groups, implying we have no prior about whether or not the REITs' characteristics influence efficiency. We set τ to one and s_p^2 to .03, which implies a weak prior on σ^2 as well.

Koop, Steel, and Osiewalski (1993) derive the joint conditional density of β and σ^2 for the above model. The conditional density functions for λ_j^{-1} and z_{ij} are:

$$(4) \quad p(\lambda^{-1} | data, z, \beta, \sigma^{-2}) = p(\lambda^{-1} | z) = f_G(\lambda^{-1} | n+1, z' i - \ln(r^*))$$

$$(5) \quad p(z | data, \beta, \lambda^{-1}, \sigma^{-2}) \propto f_N(z | y - X\beta - \frac{\sigma^2}{\lambda}, I_n \sigma^2) \prod_{i=1}^n I(z_i \geq 0),$$

where $\hat{\beta} = (X' X)^{-1} X' Y - z$, and $f_N(\cdot | \mu, \Sigma)$ is a normal density with mean μ and covariance matrix Σ , i represents an $n \times 1$ vector of ones, I_n denotes the $n \times n$ identity matrix and $I(\cdot)$ is the indicator function. n represents the total number of firms in the sample and n_j represents the number of firms in group j .

Using these conditional densities, the Gibbs sampling algorithm converges to the actual joint posterior density function as the iterations approach infinity (Tierney, 1991). In this paper, we generate 20,000 parameter vectors and drop the first 2,000 to avoid sensitivity to starting values.¹

4. Data Definitions

To compute REIT efficiency with the Bayesian stochastic frontier model, we use data collected for 1998-2005 that include information on publicly traded REITs listed in the ExecuComp data base. The final sample consists of data for 128 observations of U.S. REIT/-CEO salary pairs. Table 1 shows summary statistics for the data. Note that the average REIT CEO's total compensation was 70.5% incentive-based.

The empirical model requires data for net income (Y), REIT output (X), and executive compensation. As noted in Anderson et al. (2001) the important issue in the choice of the output measure is whether total assets are an adequate proxy for the value of the properties underlying the REITs and whether the measure is consistent between REITs. Following Bers and Springer (1997, 1998a,b) and Anderson et al. (2001), we define the measure of REIT output as *Total Assets*. Although some may argue that REITs output should be measured as *Market*

¹ Koop, Steel and Osiewalski (1994) show that the standard errors for the Gibbs sampler are nearly equal to the standard errors that would be generated from sampling directly from the joint posterior density.

Capitalization, the product of the number of shares outstanding and the year-end stock price, Lewis, Springer and Anderson (2002) find that *Total Assets* has a high correlation with *Market Capitalization* and a smaller variance than *Market Capitalization*. They find that *Total Assets* as the measure for output has yielded more consistent results, and, if it has a bias, it has shown a conservative bias.

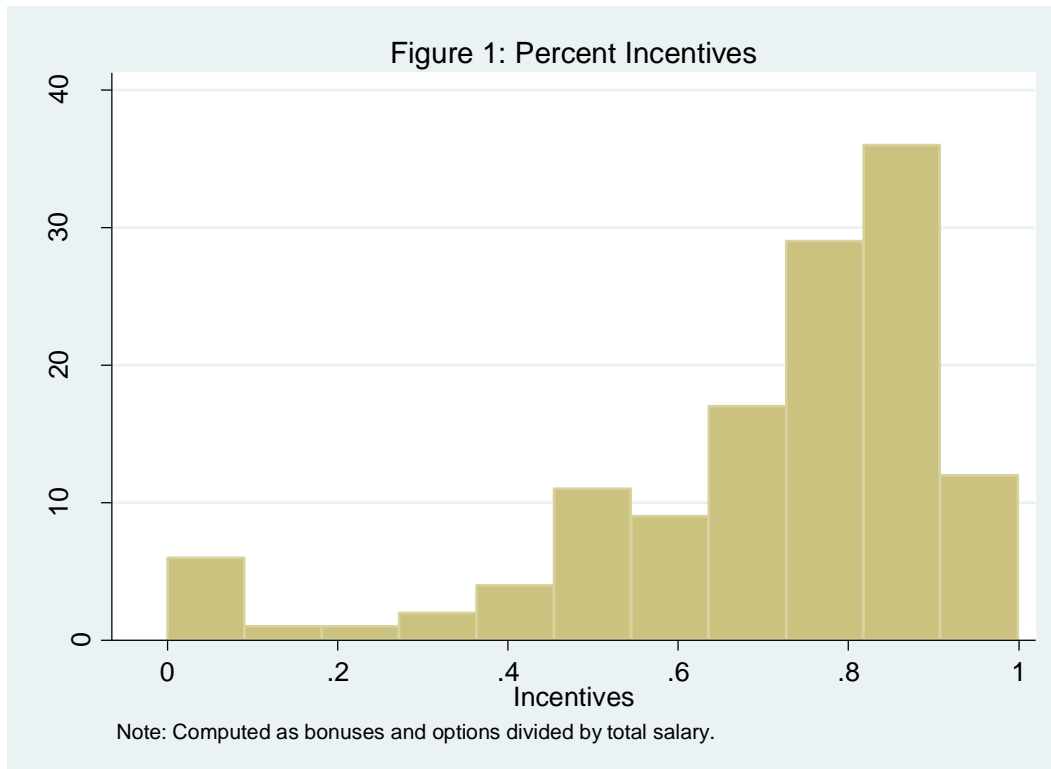
One key challenge for this study lies in dividing firms into those with a high and low level of incentive-based compensation. To understand the nature of our problem, note that the above model implicitly assumes that firms are exogenously sorted into two categories of high and low levels of incentive based compensation. However, one would clearly expect that bonuses and the value of stock options rise with net income. Thus, not only could the proportion of compensation due to incentives be exogenous, the causality may run from net income to incentive structure rather than vice versa. This presents a difficult challenge for this study because we know of prior econometric research on estimating a stochastic frontier model where the efficiency parameter varies across groups defined on the basis of a latent endogenous variable.² In light of the above problem, we utilize an alternative strategy of using three different definitions of high incentive based compensation. The idea is to highlight the problem using comparisons across the three measures. The first measure simply defines those firms with greater than the median level of incentives as a percent of total pay as high incentive-based and should suffer from the most endogeneity. Intuitively, higher net income should raise incentives during a given year. This tends to push firms with higher net income into the high incentive-based compensation category, biasing results towards finding that high incentives lead to greater

² This econometric problem poses an interesting question for future research. However, even if this problem is solved it may not provide a useful solution for this REIT application given both the sample size and difficulty of finding valid instruments.

efficiency. The next two measures break the linkage by looking at measures of the average proportion of the executive's pay attributable to efficiency across all years where the firm appears in the sample.

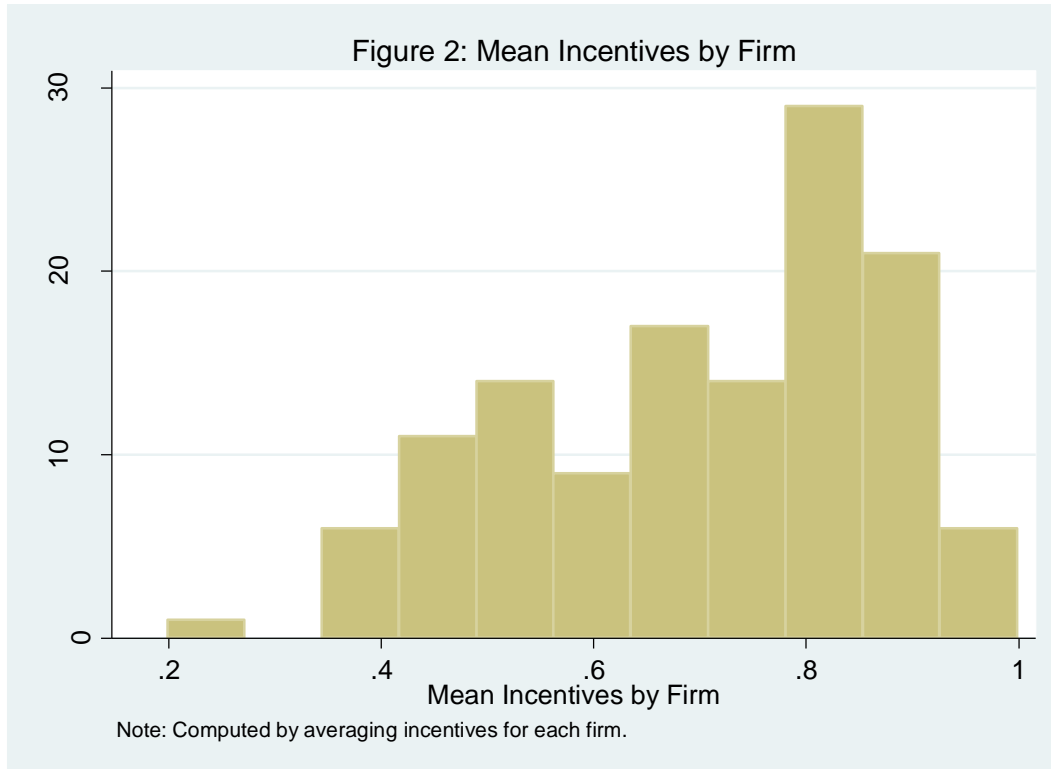
The total executive compensation measures include non-incentive based compensation and incentive based compensation. Non-incentive based compensation includes base salary and other annual compensation not included in salary or bonus and all other compensation that is not incentive based such as severance pay, debt forgiveness, imputed interest, payouts for cancellation of stock options, payment for unused vacation, tax reimbursements, signing bonuses, 401K contributions, life insurance and premiums. Incentive based compensation includes bonuses, the value of restricted stock granted during the year and the Black-Scholes value of new options granted.

Figure 1 contains a histogram of the percent of incentives as a percent of the executive's pay. Note that there is substantial variation across the sample with a median of .7686. Our first measure classifies an observation as high incentive if the incentive-based compensation share of the executive's pay is greater than or equal to .7686. This leads to 64 observations classified as high incentive with 64 left as lower incentive. As previously stated, there is clearly a likelihood that firms with higher net income awarded higher incentives. Thus, this measure is likely to suffer from the endogeneity problem discussed above and bias.



The second measure proposed attempts to weaken the link between net income and incentives to focus on the firm’s package rather than a single year. The strategy is to compute the average percentage of incentives in the executive’s pay for each firm across all years where the firm appears in our sample. In essence, this measure defines high incentive based on the average package offered by the firm over a number of years.

Figure 2 graphs the histogram of the average percent incentives defined by firm. For this measure, we define a firm as offering high incentives if the mean percent of incentives in total pay is greater than or equal to the median of .7047. For this measure, 70 observations fall into the high incentive category, leaving 58 as low incentive. Note that 106 of 128 are defined the same under both measures and 22 observations switch either from high incentive to low incentive or vice versa across measures.



A similar method is used to group observations into high total compensation and low total compensation. Again, two procedures are used. The first, based on comparing observations to the median of all observations, is again most likely to suffer from bias. The second attempts to address the problem of possible endogeneity in the grouping by grouping based on comparing firm averages across all years to the median of this measure across all firms.

As in previous studies (Bers and Springer, 1997, 1998a,b; Anderson et al, 2001 and Lewis, Springer and Anderson 2002), we examine REIT performance conditional on REIT characteristics regarding executive compensation. Namely, a stochastic profit frontier is constructed conditional on the percentage of executive compensation that comes from incentive based compensation verses non-incentive based compensation.

5. Results

Table 2 contains the results based on the methodology discussed above. As previously discussed, the basic frontier consists of year dummies, the natural logarithm of the market value of assets, log assets squared and log assets cubed. All models allow for two possible inefficiency parameters, λ_1 measuring inefficiency of low percent incentive-based (salary) observations and λ_2 measuring inefficiency of high percent incentive-based (salary) observations.

Column 1 of Table 2 examines the profit frontier by defining those firms with greater than the median level of incentives as a percent of total pay as high incentive-based CEOs. This model should suffer from the most endogeneity. Intuitively, higher net income should raise incentives during a given year. This tends to push firms with higher net income into the high incentive-based compensation category, biasing results towards finding that high incentives lead to greater efficiency. We model profit as a function of dummy variables for each year, and the multiple terms for market value of assets to allow for curvature and inflection point in the frontier. The first group (λ_1) represents the inefficiency of the low incentive compensation group of REITs while the second group (λ_2) represents the high incentive compensation group of REITs.

Note that $\frac{E[\lambda_1]}{E[\lambda_2]} \neq E\left[\frac{\lambda_1}{\lambda_2}\right]$. In this model we see some of the strongest evidence that high

incentive based CEOs are more profit efficient than low incentive based CEOs. Not only is the result economically significant, but the probability that low incentive-based CEOs are less efficient is 77.2%. However, these results are erroneous due to endogeneity.

Table 2: Bayesian Stochastic Frontier Results

Variable	% Incentive Based Compensation		Total Compensation	
	High defined by observation	High defined by Firm	High defined by observation	High defined by Firm
1998 Dummy	4.380 (0.557)	4.401 (0.577)	4.390 (0.574)	4.392 (0.577)
1999 Dummy	4.595 (0.566)	4.598 (0.560)	4.599 (0.560)	4.620 (0.586)
2000 Dummy	4.566 (0.172)	4.582 (0.174)	4.586 (0.174)	4.579 (0.172)
2001 Dummy	4.354 (0.182)	4.353 (0.184)	4.369 (0.185)	4.350 (0.182)
2002 Dummy	4.564 (0.143)	4.561 (0.142)	4.581 (0.146)	4.559 (0.143)
2003 Dummy	4.290 (0.131)	4.283 (0.128)	4.303 (0.152)	4.280 (0.130)
2004 Dummy	4.039 (0.130)	4.039 (0.129)	4.044 (0.133)	4.035 (0.129)
2005 Dummy	4.301 (0.149)	4.309 (0.149)	4.303 (0.152)	4.302 (0.150)
Ln(Market Value)	0.880 (0.103)	0.887 (0.104)	0.877 (0.105)	0.892 (0.101)
Ln(Market Value) ²	0.234 (0.132)	0.236 (0.132)	0.230 (0.133)	0.233 (0.131)
Ln(Market Value) ³	-0.092 (0.047)	-0.093 (0.047)	-0.091 (0.047)	-0.092 (0.047)
σ^2	0.162 (0.035)	0.159 (0.035)	0.162 (0.037)	0.160 (0.035)
λ_1	0.421 (0.083)	0.398 (0.081)	0.435 (0.088)	0.392 (0.078)
λ_2	0.351 (0.082)	0.390 (0.081)	0.342 (0.083)	0.390 (0.086)
λ_1/λ_2	1.254 (0.353)	1.055 (0.262)	1.336 (0.392)	1.043 (0.272)
Prob($\lambda_1 > \lambda_2$)	0.772	0.536	0.825	0.511

Note: There were 128 observations for each model.

Column 2 of Table 2 attempts to address endogeneity issue by examining the profit frontier produced by defining those CEOs with greater than the 5-year median level of incentives as a percent of total pay, as high incentive-based CEOs. After controlling for the endogeneity, we find no evidence that the two groups of CEOs have different profit efficiencies. Not only are the inefficiencies nearly equal, the probability that low incentive-based CEOs are more inefficient than high incentive based CEOs is only 53.6%. This result indicates that the current pay composition is optimal given the environments that each of these CEOs work in. Even those that are paid with relatively low incentives are just as effective at producing profits as are their high incentive counterparts. However, just because REITs are tending to pay more incentive-based rewards doesn't mean that CEOs are paid too much. We interpret this result as CEO compensation is appropriately composed of an optimal mix of incentive-base and non-incentive-based rewards.

Column 3 of Table 2 attempts to shed light on the magnitude of the compensation packages. Like in Column 1, we define the high group as those CEOs with greater than the median level of total pay. We anticipate that this model should suffer from a significant amount of endogeneity, particularly in light of the fact that the more recent trends are to load the CEOs total compensation up with incentives. Like model one, we find this model indicates the most difference in the two groups. The low compensation group is more inefficient than the high compensation group. The bias in the results not only increases the economic impact of CEO compensation, but it also biases the significance. The posterior probability that the low compensation CEOs are more inefficient than the high compensation CEOs is 82.5% in this model.

Column 4 of Table 2 addresses the endogeneity between net income and executive compensation by defining the high total compensation group as CEOs who are above then median 5-year total compensation level. Like model 2, we find that there is little or no difference in profit efficiency between the highly compensated and their lowly compensated counterparts. Once again, this offers evidence that the overall level of CEO compensation does not seem to affect profit efficiency. That is, the compensation adds to expenses, but is offset by greater productivity indicating that there is no evidence that REIT CEOs are overpaid. In fact, we interpret this as evidence that CEOs are paid optimally.

6. Conclusion

What does this mean? We consider four models of profit; two that depend of the percent of incentive based compensation and two models that depend on total compensation. Using a form of the dependent variable (compensation) as an explanatory variable clearly generates the possibility of an endogeneity problem. Models of profit that adjust for the endogeneity provide no evidence that the composition of CEO pay is sub-optimal. That is, both models show that there is little or no difference in profit efficiency between CEOs that are paid high levels of total compensation and those that are paid low levels. It is also the case that we find no evidence that high incentive-based compensation packages create higher profits.

This evidence lead us to believe that total compensation or the mix of the compensation matters, but that the current compensation decisions of REIT boards appear to be optimal. That is, every REIT has a different corporate environment and/or set of

objectives and a set mix of compensation or magnitude of compensation is not appropriate for all. One shoe doesn't fit all foot sizes. Because of the heterogeneous set of circumstance that each REIT faces, each REIT compensation board must set rewards in conjunction with their specific fund objectives. Our results suggest that REIT boards may be optimally setting compensation packages both in the mix and magnitude of rewards for CEOs.

Table 1
Descriptive Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Total Salary	\$2,575.4	\$1,924.7	\$50.1	\$9,535.3
Fixed Salary	\$531.1	\$277.5	\$0.1	\$1,428.5
Incentives	\$2,044.2	\$1,802.5	\$0.0	\$8,725.1
Percent Incentives	0.705	0.230	0.000	0.999
Net Income	\$206.7	\$182.5	\$0.5	\$861.8
Market Value	\$3,929.7	\$3,517.0	\$262.5	\$17,213.3
ln(Net Income)	4.869	1.098	-0.654	6.759
ln(market value)	0.955	0.960	-1.338	2.846

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