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Corporate visibility and executive pay

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ABSTRACT

This paper seeks evidence of implicit regulation of executive pay. The implicit regulation hypothesis suggests highly visible companies will constrain their behavior to avoid potential reprisals from constituents, politicians and potential regulators. We extend this literature using a measure of corporate visibility based on the number of news stories about each firm in a balanced panel of 242 public companies.

1. Introduction

We use a panel of 242 UK public companies to estimate the impact of corporate visibility on executive pay. The implicit regulation hypothesis suggests that highly visible firms will constrain their behavior to avoid reprisals from constituents, politicians and potential regulators. We test this using visibility measured by the number of news stories about each firm.

Links between executive pay and firm performance have generated academic interest for many years, but Jensen and Murphy (1990) raised this issue's profile with the publication of a much-cited estimate of the pay-for-performance link at $3.25 per $1000 change in shareholder wealth. Similar results have been identified for the United States by Coughlan and Schmidt (1985), Demsetz and Lehn (1985), Garen (1994) and Aggarwal and Samwick (2003) and others. The link between pay and performance for executives has also been identified in the United Kingdom by, among others, McKnight and Tomkins (1999, 2001).

Jensen and Murphy (1990) argued that the link between pay and performance was lower than predicted by agency theory, and they suggested that executive pay in highly visible firms was constrained by implicit regulation through decentralized information markets. Part of their evidence was the observation that larger companies tied CEO pay less closely to market returns than smaller companies, making the assumption that firm size proxies visibility. Other authors identified the variance of stock returns as an alternative explanation for the link between size and pay-for-performance relationships (Holmstrom and Milgrom, 1987; Aggarwal and Samwick, 1999; Grund and Sliwka, 2010), though evidence of size-related effects remains in some models controlling for volatility (Cichello, 2005). Our contribution is the use of a direct visibility measure, thereby avoiding size-based assumptions, and the use of both measures allows us to disentangle potentially competing effects.

2. Method

We use a balanced panel of UK public companies from 1999–2002. The data come from Datastream and annual reports. There were 843 UK-based non-financial companies traded on the FTSE exchange in October 2002. A substantial amount of data has been obtained from 799 firms (94.8%), but use of a balanced panel limits analysis to 968 observations from 242 firms. Analogous results have been produced with an unbalanced panel of 1193 observations. The chief limiting factor is the availability of detailed executive pay information, and firms tend to report this information consistently or not at all. We have conducted mean-difference tests on a range of variables comparing firms reporting pay data with non-reporting firms, and the only substantial differences identified are in the relatively large size of the reporting

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Table 1
All models estimated using random effects where the dependent variable is the change in company-related top executive wealth: including changes in salaries, bonuses, and the value of company shares and options.

	[1] ΔCEO Wealth	[2] ΔCEO Wealth	[3] ΔCEO Wealth	[4] ΔCEO Wealth	[5] ΔCEO Wealth
R-squared	0.271	0.445	0.456	0.448	0.463
F-statistic for Δ*R*-squared		150.523**	10.599**	3.176**	5.802**
Number of firms	242	242	242	242	242
Number of observations	968	968	968	968	968
Constant	793,569.70	648,457.71	1,025,610.00	685,204.74	1,064,010.00
Annual returns to common stock (*x* 1000)	3.60**	3.81**	3.79**	4.33**	4.30**
Risk		−24,669.40	−24,410.80	−24,457.70	−24,205.30
Risk *X* returns		−1.22**	−1.13**	−1.21**	−1.12**
Size (*x* 1000)			2907.51*		2799.48*
Size *X* returns			−0.58**		−0.59**
Visibility				457,040.22	645,292.94
Visibility *X* returns				−0.14**	−0.14**

* $p < 0.05$.
** $p < 0.01$.

firms, whether measured by market value, total assets, staffing levels or sales volumes. Our regression analyses control for the effect of size, thus mitigating against some biases attributable to the balanced panel, but there may be other effects induced by survivor bias associated with a focus on relatively successful firms.

Our visibility measure is calculated as the annual number of times companies appear on the Reuters newswire. Annual values range from six to 16,860 stories about a firm, and firm-mean values range from 7.25 news stories per annum (Goodwin PLC) to 8195 per annum (Unilever). This distribution is heavily skewed, with the median firm featuring in 104 stories per annum and the mean firm appearing 312 times. We use a logarithmic transformation of the annual values to quantify visibility.

Jensen and Murphy (1990) used a dummy variable based on market value as a proxy for corporate visibility, but this approach suppresses variation. We consequently employ a logarithmic transformation of market value to reflect size, and we have verified the results of this paper using total assets as an alternative size measure.

Financial information comes from annual reports and Datastream. Our approach allows us to combine annual information about executive pay packages and share holdings with firm value data. We calculate real values using the all-items annual retail price index from the Office for National Statistics. We also use monthly share price information to assess equity risk.

3. Model

Rather than adopting the ordinary least squares approach taken by Jensen and Murphy (1990), we use random effects to estimate the following equation, specified in first differences to sweep out the influences on CEO wealth of any time-invariant omitted variables:

$$\Delta CEOWealth_{i,t} = \alpha + \beta_0 \Delta FirmValue_{i,t} + u_{i,t}. \quad (1)$$

This equation examines the level change in the pay of executives as a function of the level changes in the market value of the company and the riskiness of firm equity, as well as the interaction between these features. This is a standard random effects specification, where

$$u_{i,t} = \mu_i + \nu_{i,t}. \quad (2)$$

We focus on the change in the total company-related wealth of executives including changes in salary, bonus, the present value of changes in cash compensation under the assumption that they will be received until retirement, as well as changes in the value of an executive's portfolio of company shares and Black–Scholes option valuations.

Consistent with the definition employed by Jensen and Murphy (1990), the level change in market value is calculated as:

$$\Delta FirmValue_{i,t} = r_{i,t} V_{i,t-1} \quad (3)$$

where $r_{i,t}$ is the return to common stock and $V_{i,t-1}$ is the value of the firm at the beginning of the financial year.

Aggarwal and Samwick (1999, 2003) and others have suggested that equity risk is an important determinant of the incentive intensity of executive pay, in particular because of the risk premium executives attach to non-diversifiable share-based compensation (Murphy, 2002). As such, we include the level of risk, as well as its interaction with changes in value in our regressions. We calculate the standard deviation in market valuations for each company using data from the previous 24 months. These data are highly skewed, and following Aggarwal and Samwick (2003) we quantify the risk of each firm as its percentile rank from this distribution. Use of the coefficient of variation instead of the standard deviation has no impact on our inferences.

We also include the levels of size and visibility, as well as their interactions with changes in value in our regressions. We begin with size to verify the results of Jensen and Murphy (1990) and proceed to establish that our direct measure of corporate visibility provides unique explanatory power for understanding top executive pay–performance sensitivities. The significance of the interaction between corporate visibility and changes in value, as well as the associated increase in explanatory power associated with the addition of these variables, implies a systematic difference in the relationship between pay and performance based on corporate visibility.

4. Results

Table 1 presents regression results for our sample. Model 1 compares with Jensen and Murphy (1990). Model fit is acceptable, with an *R*-squared of 0.27. A Baltagi–Li test suggests we can reject the null hypothesis that an ordinary least squares approach is acceptable ($F = 13.34$, $p < 0.01$) and a Hausman test implies that a random effects approach is preferable to a fixed effects approach ($F = 0.69$, $p > 0.99$). This remains the case for all subsequent models. The coefficient on common stock returns quantifies the link between pay and performance, and we can see that this coefficient is significantly different from zero at conventional levels. The value suggests that the average top executive can expect a wealth increase of £3.60 for every £1000 increase in shareholder

wealth. Examination of our unbalanced panel yields a similar result ($\beta = £3.46$).

Model 2 extends our model by controlling for the impact of equity risk on executive pay, and while the level of risk has no significant effect on executive pay, we can see confirmation to the predicted attenuation of incentive intensity associated with the interaction between risk and returns ($\beta = -£1.22, p < 0.01$). There is a significant increase in model fit, with *R*-squared rising to 0.445.

Model 3 additionally controls for firm size. We do this because Jensen and Murphy have identified this relationship in the past, and authors continue to emphasize the importance of firm size (Cichello, 2005). Model 3 fits significantly better than Model 2 ($F = 10.599, p < 0.01$), and our results confirm both a positive size–wage premium ($p < 0.05$) and significant incentive intensity attenuation, as indicated by the interaction between size and returns ($\beta = -£0.58, p < 0.01$).

Model 4 introduces our direct measure of visibility instead of using size as a proxy. There is a small significant increase in model fit relative to Model 2 ($F = 3.176, p < 0.05$), and the results indicate incentive intensity attenuation by visibility ($\beta = -£0.14, p < 0.01$). Finally, we include both size and visibility in Model 5. Overall model fit again improves ($F = 5.802, p < 0.01$), and the significant links identified in previous models remain.

5. Conclusions

This paper extends the literature on executive pay–performance relationships using a direct measure of visibility to assess the implicit regulation hypothesis and finds that visibility attenuates the link between top executive pay and performance, even when controlling for the effects of equity risk and firm size. Though significantly different from zero, and similar in magnitude to the pay–performance relationship identified by Jensen and Murphy (1990), this relationship is quite weak. The results in Model 5 suggest that decentralized markets for information may affect the pay-for-performance sensitivities of executive pay packages, but they also suggest a residual effect of firm size on the pay–performance relationship for executives that is worthy of further study.

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