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CEO pay

What really matters when determining a CEO's pay.

By Chris Blair and Bryden Morton

The question of which element within a company influences CEO guaranteed pay the most has drawn much attention, not only from human resources professionals but the general public and shareholders of public companies as well. This topic drove much debate last year with questions regarding the inequality between CEO and average employee pay as well as the link between CEO pay and performance.

Recent papers have suggested that corporate profitability should be used as the metric upon which CEO pay should be anchored and that profitability is a good measure to link CEO pay to performance. One paper (Sharpe 2013) concluded that the correlation coefficient between CEO pay and company profitability was 0.3 up from 0.23 as previously calculated by the authors. In contrast to these papers, this article postulates that factors driving CEO remuneration are more complex than that and cannot be based on a single metric such as corporate profitability. We also suggest that corporate profitability in a single year is not a solid metric on which to anchor CEO pay as it is

can easily be manipulated in a variety of ways to reflect different results. Measuring performance over one year, through profitability, is counter to King 3 in our view. We postulate a list of metrics that influence CEO guaranteed pay using a database of 294 companies. Table 1 below ranks the metrics for determining CEO guaranteed pay in order of descending correlation coefficient against CEO guaranteed pay.

Table 1: Correlation coefficient between company metrics and CEO pay
Table 1 leads to a couple of key observations. Firstly, Number of Employees and Turnover have the largest correlations with CEO guaranteed pay, with relatively strong correlations of 0.69 and 0.65 respectively. This implies that the size of the organisation is the largest driver of CEO remuneration. The second observation is that all 10 of these metrics have higher correlations than the 0.3 which was reported for corporate profitability in a previous paper. It is important to note that Table 1 does not suggest that any of these metrics in isolation is the best metric upon which to base CEO guaranteed pay. Table 1 merely indicates that there are other metrics with greater correlations than corporate profitability.

Using a sample of 132 companies*, CEO guaranteed pay is regressed against the top five metrics in Table 1. 132 companies are used as these companies had available data for all five variables in the regression analysis below. Tables 2 and 3 contain selected statistics from the regression analysis.

Table 2 and 3: Selected Statistics from the Regression Analysis
A number of observations can made from this regression. Firstly, Number of Employees is not only the highest individually correlated metric. It is also the most statistically significant in this regression. This can be seen by the high correlation in Table 1 and the low, statistically significant, p-value in Table 3. Turnover, which is the second most individually correlated metric, is the least statistically significant metric in the regression. The relatively large

VARIABLE	CORRELATION
Number of Employees	0.69
Turnover	0.65
Dividends Paid	0.56
Fixed Assets	0.51
Capital Employed	0.51
Equity & Liability	0.50
Average Share Price	0.48
Total Assets	0.42
Total Assets (Ex Intangibles)	0.39
Value Added	0.32
Corporate Profitability*	0.30

*Corporate Profitability correlation taken from Sharpe 2013

TABLE 2	
Regression Statistics	
Multiple R	0.79068445
R Square	0.62518189
Adjusted R Square	0.61030816
Standard Error	3309.10391
Observations	132

insignificance (large p-value) of Turnover on CEO guaranteed pay explains why, although we would expect Turnover to be positively correlated with CEO guaranteed pay, this particular regression analysis indicates that it is negative. In order to distinguish between correlation and statistical significance we offer the following explanation.

A variable can have a large correlation and be statistically insignificant as they measure different things. Correlation measures the strength of a relationship between two variables (for example Turnover has a correlation of 0.65 which indicates that higher CEO guaranteed pay values are correlated to higher Turnover values) whereas statistical significance measures how likely it is that the correlation occurred by chance. The p-value of 0.69 for Turnover indicates that the likelihood of the correlation between CEO guaranteed pay and Turnover is 69 percent likely to be coincidental; the low t-stat of -0.38821 indicates this as well).

Although Turnover has a high correlation with CEO guaranteed pay, the statistical significance of this relationship in the regression analysis is far weaker. Dividends Paid which was third on the list of individual correlations with CEO guaranteed pay is highly statistically significant in this regression model and is the second most statistically significant.

The second important observation to make from regression tables is that 61 percent of the variation in CEO guaranteed pay can be explained by the analysis as indicated by the Adjusted R-Square statistic. This means that as an approximation of what drives CEO guaranteed pay, this analysis explains 61 percent of the differences between what the CEOs in this sample are paid.

This analysis's ability to predict 61 percent of the variance in CEO guaranteed pay (although not directly comparable) seems intuitively more attractive than the correlation of 0.3 between CEO pay and corporate profitability (a single variable) as previously reported.

Conclusion
I believe that profitability (or any single variable in isolation) is not an appropriate metric to use in determining CEO guaranteed pay as it is easily manipulated in a manner which can threaten longevity of the company. This paper tabled a list of 10 possible metrics which can possibly determine CEO guaranteed pay and found that, in isolation, Number of Employees, Turnover and Dividends Paid are highly correlated with CEO pay. As a result of Turnover being highly statistically insignificant in the regression analysis, it can be concluded that Number of Employees (related to company size) and Dividends Paid (Related to Company Profitability) are among the best metrics to use when trying to find a model that reveals which set of variables best explains the variation between CEO guaranteed pay.

When the top five most correlated metrics in Table 1 were used as explanatory variables in the regression, it was found that the model explained 61 percent of the variation in CEO guaranteed pay. This is an attractive result and supports the argument that although some metrics in isolation have a strong correlation with CEO guaranteed pay, CEO guaranteed pay is too complicated in nature to be explained by a single metric and a more encompassing approach (multiple variables) is needed. ■

TABLE 3			
	Coefficients	t Stat	P-value
Intercept	+	7.909528	0.00000
Number of Employees	+	5.6805	0.00000
Turnover	-	-0.38821	0.69851
Dividends Paid	+	1.865214	0.06448
Fixed Assets	+	0.892608	0.37377
Capital Employed	+	0.527858	0.59853

*132 companies had data for all five of the top five correlated metrics

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