Chief Executive Officer compensation, Firm Performance and Corporate Governance.

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1 Introduction

Most of the current interest by economists on managerial compensation arises from an interest in principal-agent problems (see Barkema and al. 1997). This theory emphasises the shape (see Agrawal et al. 1998) rather than the level of pay considered as a source of incentive for senior managers. Empirical evidence shows that there is a significant relationship between managerial pay and firm performance but for the majority of top managers this relationship is weak (see Murphy, 1985, Jensen and Murphy 1990 among the others). One of the potential effects of governance, which will be considered, concerns the incentives. Some of Principal Agent models, to align contrasting interests, suggest that there should be a close relation between executive remuneration and corporate performance (see Mayer 1998). But it is very difficult to write and enforce a contract that specify every possible action and state of the world (see Williamson 1996)
Here two models of managerial rewards are being examined. One regards a "hierarchy model", the other a linear combination of some variables that affect reward itself and are a proxy of corporate governance (CG). What interest particularly is to compare two features and to check, on one hand, if there is an association between the level of CEO compensation, the quality of firms' CG and the firm performances and on the other hand, if the hierarchical structure of the firm can explain the executive reward of itself.

2 Literature review

Much of the past empirical analysis has focused its attention on the relative importance of profits and size of company on managerial remuneration (Murphy 1985, Rosen 1992). The literature about CG and CEO compensation appears controversial. There is evidence of lack in CG structure to incentive an efficient behaviour from CEO but, at the same time, we do not have clear guideline for optimal governance structure. A lot of studies, all based on United States data, suggest that the board of directors are ineffective. Such results can not be generalised since external control system, tax regimes and collective decision making differ across countries.

Two works[1] based on UK data (Conyon et al. 1995; Cosh and Hughes 1996) examine the impact of CG innovations on top director's compensation in some UK firms. Director's compensation and current shareholder's returns are positively correlated. There is evidence that CG variables[2] play an essential role in shaping top director pay: firms with "remuneration committees" have lower growth rates in CEO compensation and to separate the roles of CEO and chairman matters. On the other side corporate boards remain dominated by "insider" directors who have spent most of their careers with the same firm. This is especially true at CEO level.

Crystal (1991) argues that non-executive directors are not efficient in playing their role since they are nominated and can be removed by CEO. This gives an incentive to do not act for shareholders' interests.

Mueller and Yun (1997) examined two hypotheses on managerial compensation. Managers are hired by the Principal to provide managerial services so reward is a pure functional return for services. In the second model managers set their salaries. They use estimates of returns on investment as proxy of managers' discretion. They even explain why some managers receive higher salaries than the ones predicted by bureaucracy model.

Jensen (1993) argues that boards of directors are ineffective because board culture discourages conflict. Board of directors that are not completely independent from incumbent managers can fail since they are responsible for setting managerial pay and for ousting top manager that performs badly. Furthermore, the number of members of the board is usually higher than the number that could lead to faster and collective decisions.

Lambert and al. (1993) find a positive relation between the CEO compensation and the percentage of outside directors. They even find that CEO receives higher pay when he has appointed a relevant number of board members. Hallock (1997) finds that CEO compensation is higher in firms with interlocked non-executive directors.

A branch of literature examines the relationship between firm performance and board structure. Even here results are highly controversial. In Wagner et al. 1998, shareholder wealth is affected by the proportion of outside directors. This is documented by a positive reaction of stock prices after the announcement of an additional outside directors. In a work of Yermack (1996), the stock performance of the firm is not affected by the extra-presence of outside directors. May be times are changing or that other variables could explain this behaviour. In fact, it is not possible to understand if the extra-non-executive director considered by Yermack is independent or strongly interlocked. The author finds also that firm value is significantly higher when officers and directors have greater ownership. In Franks, Mayer and Renneboog (1998) four parties discipline poorly performing management: existing holders of large blocks of shares, investors acquiring new shareholding, creditors and non-executive directors.

The paper shows that all of them are directly involved in monitoring management but there is not comparison of their relative significance. Another interesting result is that non-executive directors of the considered firms are less effective compared with non-executive directors of US firms. Take-over is usually seen as a possible threat to discipline ineffective management[3]. Kang and Shivdasani (1995) find that hostile take-overs are more likely when target outside directors own less equity and serve on fewer boards. On the other hand

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[1] *While the literature on the topics based on US or Canadian data set is quite extensive, the work based in non US firms are really few. In Europe there are still difficulties with data collection since firms have not clear obligation on publishing data on Corporate Governance. UK is an exemption.*

[2] *as i.e. the role of financial markets, set of rule of the countries, existence and role of market of corporate control, different debt composition (and so a different principal to be subject as i.e. a debt financed by bank will be controlled by a financial institution with its own objectives while a retained earnings is subject to shareholder general meeting).*

[3] *We do not consider here all the literature about the possible incentive of takeover in privatized firms but several works gives lots of evidences in takeover as a tools to improve management performance.*

Holthausen and Larcker (1996) indicate that performance subsequent to the initial public offering of a previous leveraged buyout is positively associated with the change in the equity stake of both the executive and non-executive investors of the firms. Agrawal and Knoeber (1998) find that a great threat of take-over has two opposing effects on managerial compensation. The sign of the two effects, connected with the competition in the manager market and with the risk of managerial work, is dual and cause a shift in how remuneration are shaped. The sum of the two effects is positive.
Given this short survey, this work aims to understand which role governance plays in the determination of managerial reward. At the same time, studying managerial discretion, we try to understand if there is a sort of correlation between managerial discretion and managerial compensation. If the relationship exists it could be a possible explanation of non-optimal reward as
1)an extra incentive that the owner gives to manager (as with efficiency wages)
2)a direct result of managerial discretion is influencing the reward committee of the firm.

3 Trend in Managerial reward and Data Consideration

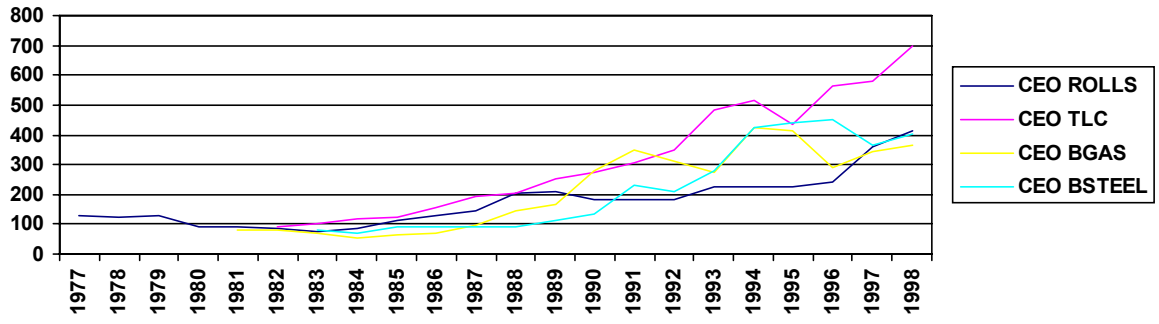
Management rewards is usually higher in private firm than in public firms (see Cole and Mehran 1998, Wagner et al. 1998). In Table 1 there is the year of privatisation for the firms studied.

Table 1 Date of privatisation of the firms studied

Firm	**Year of beginning of the sale**	**Firm**	**Year of beginning of the sale**
British Telecom	1984	British Aerospace	1981
British Gas	1986	Rolls Royce	1987
British Steel	1988	British Airways	1987
British Railways	1993		

In Picture 1 there are the trends of reward for CEO in 4 of the considered firms. Data are in expressed in thousand pounds in constant (1990) price. The data considered do not include stock options (data not available).

Picture 1 Trend in CEO rewards



For British Telecom the increase in the level of compensation starts around 1985, it shows a volatile trend between 1993 and 1996 and the highest value in 1998. Rolls Royce had a stable level of compensation until 1989. After, the level of reward jumps to a more high level. For British Steel, we observe a small increase in 1987 and a positive trend from 1988 till today. British Gas had a stable level of remuneration until 1987, a strong increase between 1988 until 1992 and a higher stable level from 1992 until 1998. Finally, for British Aerospace we

note a small increase following the privatisation for the first 5 years till 1987, a strong increase for 5 years, a pick in 1994 and a stable lower level from 1995 till today.

COMPENSATION:
The variable COMP is defined as the direct compensation (salary plus bonus 1990 price) of CEO in company *i* at time *t*. We do not include stock options. The data needed to study this component are available only for the last three years and there is not a clear criterion to value stock option. Therefore, as in other studies (see Conyon and Gregg 1994, Garvey et oth.1996), we decided to use this proxy.
FIRM PERFORMANCE
Larger firms with greater growth opportunities and more complex operations will demand higher-quality managers with higher equilibrium wages (see Cosh et al. 1996; see also Smith 1996). A proxy used for firm size and complexity of operation is the volume of turnover or sales. Firm performance is measured as Turnover in constant prices or Sales in constant prices depending on the available measure in the Annual Reports. Sales and turnover are for the year prior to the year in which compensation is awarded. Profsales is the ratio Profits over sales.
BOARD COMPOSITION
Wagner et al. 1998, Kose and Lemma (1998) and Klein 1998 consider Board composition as an important determinant of performance and reward. Although no theoretical work exists (see Warther 1998) on the optimal size of boards it has been observed (Kole and Lehn 1997) that board size is likely to contract after regulation or deregulation procedures. In addition, outside directors serve an important monitoring role (Brickley et al. 1994). Wagner et. al 1998 instead of providing evidence of a positive outsider effect, find that the level of performance is correlated with the greater relative presence of either insider or outsider directors. This contrasts with the structure of all the main projects of CG Guideline where the presence of outside directors is seen as a sort of control of the insider directors and as a better balanced structure of Board.
We considered several possible situations that can influence the level of rewards in the board:
Non-exec. director is the percentage of non-executive directors on the board.
"Old" directors are non-executive older than 65.
Busy director is the percentage of directors who serve in other three Boards.
OWNERSHIP NATURE
Several empirical works (see Denis et al. 1997) used ownership structure as a control variable. To check if ownership matters we need to distinguish between public and private owned firms. Therefore, the variable "Ownership" will assume a value of one if the firm is private and a value of zero if the firm is public.

4 Reward as outcome of hierarchy

Following Mueller and Yun (1997), a way to interpret the level of reward of people employed by the firm is to observe the level in the hierarchical structure of the firm they are. Supervisors are usually paid more than supervise. Let us call β the wage differential between two people in an immediate hierarchical relationship. If the employed to the lower level has a wage of w_0, his "hierarchical boss" will have a wage of βw_0. Moreover, this is true for each level of the hierarchy. So β can be seen as the geometric mean of all the βi (the single β for each level). If in a firm there are *n* level, the wage of a top manager of the firm will be equal to $w_n = \beta^n w_0$ where w_0 is the entry wage.

Calling the number of levels *n* and the size of the span (how many people are supervised by a supervisor) s, the total employment of the firm will be $N = \sum_{i=1}^{n} s^{i-1} = \frac{s^n - 1}{s-1} \cong \frac{s^n}{s-1}$. Moving in log the formula will be $\ln N \cong n \ln s - \ln(s-1)$. There are some evidences about the value of *n*, β and *s*. *S* generally falls between 5 and 10, the average β is around 1.5 and for firm between 1000-100000 employed *n* should be between 4 and 7.

$N = \frac{s^n}{s-1}$ Solving for n will lead to $s^n = N(s-1)$ and in log $n \ln s = \ln N + \ln(s-1)$ and $n = \frac{\ln N + \ln(s-1)}{\ln s}$. Taking in to account that $w_n = \beta^n w_0$ and substituting for *n* will lead to $w_n = \beta^{\frac{\ln N + \ln(s-1)}{\ln s}} w_0$ and in log $\ln w_n = \ln \beta^{\frac{\ln N + \ln(s-1)}{\ln s}} w_0$ so $\ln w_n = \frac{\ln N + \ln(s-1)}{\ln s} \ln \beta + \ln w_0$

and $\ln w_n = \left(\ln w_0 + \ln \beta \frac{\ln(s-1)}{\ln s} \right) + \frac{\ln \beta}{\ln s} \ln N \qquad (1)$

The wage of a top-level manager is a linear function[4] of employment. The entry level is determined by market force or by a process of negotiation between unions and industry's representatives. Given such a functional form, there are several ways to increase managerial reward without any connection to firm performance. One of them is just to create small span and to force an increase in the number of levels in the hierarchy. Another one is to act on the level of β at certain level of the firm's hierarchy. So, in the wage setting problem, some managers have a quite large discretion in their act or, if there is a remuneration committee, they have sometimes the power to control easily this control device. If management has discretion in setting his own wage, probably he will not do it keeping in mind the Principal's objective of maximum profit but he will set the wage at a level that will maximise his private benefit. Private benefit can be seen as a function of firm size so we can try to test the hypothesis (see Marris 1964, Mueller and Yun 1997) that management would invest beyond the level that would maximise shareholder wealth.

If we define r_t as the return on assets for firm *i* at time *t* and i_t its cost of capital (expenditure for interest on capital), we can build a ratio $c = \frac{r_t}{i_t}$. If the value of *c* is greater than 1, the firm has a return on assets greater that its cost of capital. In this case, managerial discretion (*D*) will be equal to *zero*. If the value of *c* is smaller than one, the value of *D* is a linear function of *c* and exactly *D=(1-c)*.

Considering that β is the required-by hierarchy-law wage differential, we can call β' the observed wage differential and consider it as a function of management discretion *D*. So $\beta' = \beta M^D$ where *M* is a parameter > *1* and $\beta = \beta'$ if *D=0*.

Equation (1) becomes $\ln w_n = \left(\ln w_0 + \ln \beta' \frac{\ln(s-1)}{\ln s} \right) + \frac{\ln \beta'}{\ln s} \ln N$ and using $\beta' = \beta M^D$

$\ln w_n = \left[\ln w_0 + (D \ln M + \ln \beta) \frac{\ln(s-1)}{\ln s} \right] + \frac{D \ln M + \ln \beta}{\ln s} \ln N \qquad (2)$.

For estimation reasons it is possible to rearrange (2) as

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[4] *The fact of having a linear function here helps to simplify the understanding of the cross-correlation of the considered determinants of CEO reward*

$$\ln w_n = a + bD + e \ln N + fD \ln N \qquad (3)$$

$$a = \ln w_0 + \frac{\ln(s-1)}{\ln s}\ln \beta \quad ; \quad b = \ln M \frac{\ln(s-1)}{\ln s} \quad ; \quad e = \frac{\ln \beta}{\ln s} \quad ; \quad f = \frac{\ln M}{\ln s}$$

and estimate (3)[5]

The economic interpretation of (3) is that CEO Remuneration is a linear (on parameters) and direct function of two variables: manager discretion and total employment in the firm. Total employment can be seen as a proxy for firm'' dimension. As we observe in the last term of (3) there is a sort of cross effect of manager discretion and size of the firm. The interpretation of the parameter of this term will help us to understand if there is a sort of positive or negative correlation between size and discretion.

5 Results of the estimation, value of parameters and some comments.

In Table 2 there is the estimation of model 1 $\ln w_n = a + bD + e \ln N + fD \ln N$. Given the nature of data, we used a 5th parameters representing a possible time trend. The sample of data is composed by 96 observation.

Table 2 Estimation of two versions of equation 4

	Estimation of $\ln w_n = a + bD + e \ln N + fD \ln N$			***Estimation of*** $\ln w_n = a + bD + e \ln N + fD \ln N + gO + hS$		
	Coefficient	***Std.Error***	***t-prob***	**Coefficient**	**Std.Error**	**t-prob**
Constant (a)	9.0630	0.76721	0.0000	9.8007	0.93052	0.0000
D (b)	-0.96731	0.67954	0.158	-0.80126	0.65063	0.2214
Logemploy(e)	0.18941	0.065915	0.0051	0.11875	0.078438	0.1336
Dperemp (f)	0.085505	0.060553	0.1613	0.071338	0.058027	0.2222
Trend	0.022037	0.001258	0.0000	0.017242	0.0017556	0.0000
Ownership (g)*	----------	---------	-------	0.40003	0.10201	0.0002
Sector (h)**	----------	---------	-------	-0.02037	0.078450	0.7957
Tests	$R^2 = 0.78744$	F(4,91)=84.279 [0.0000]	DW=1.74	$R^2 = 0.81924$	F(6,89)=67.23 [0.0000]	DW= 1.68

**0 Public firm, 1 Private firm; ** 0 Service sector, 1 Manufacturing Sector*

All the tests carried on for mispecification of the model, heteroscedasticity, null-hypothesis for all the parameters are significant so the model it is well specified and does not show problems of heteroscedasticity or autocorrelation.

The estimates of *e* and *f* are both positive and smaller than 1 as predicted.

If we assume an average value of s=7 and b=1.5 that are the most common in reality, given that $\ln w_0 = 9.0630 - \frac{\ln(7-1)}{\ln(7)}\ln(1.5)$ the estimated entry wage will be approximately 5941 pounds (data are from Britain with data in constant price 1990) and this is a plausible value even if it is slightly small.

The value of the parameters *e* and *f*, even if consistent with the prediction, could suggest some non-linearities in the data. In fact, we have to consider that $\frac{\ln(s-1)}{\ln(s)} > 0$, a coefficient *b* smaller than *0* implies that *M* will be smaller than *1* (even if the solution of the system approx M to 1). If this is true, *f* should be smaller than zero since *lns* is positive. Therefore, the equation $\beta' = \beta M^D$ probably does not explain in a correct way the relationship between the theoretical differential salary and the observed (and discretionary) differential salary. We

[5] *We are estimating four coefficients so we will be able to solve for each of the four unknown parameter of the model. This model, following Mueller and Yun 1997, has some restriction of the coefficient estimates. B should be smaller than 2, s bigger than 5 so the coefficient e should be smaller than 1. To obtain a value of f smaller than one, M has to be smaller than 5.*

have to consider that the measure of managerial discretion, D, is only a proxy for a complex phenomenon.
Taking the first derivative of the estimated function with respect to discretionality, we obtain that $\frac{\partial \ln w_n}{\partial D} = -0{,}9673 + 0{,}085505 \ln N$. This means that at low employment levels, an increase in managerial discretion (D) reduces managerial compensation but as size increases, the partial derivative increases and become positive. The value of *lnN* for whom managerial compensation begins to rise with increasing managerial discretion is 11.313. This means that for all the firms with more than 81879 employees there will be an increasing managerial compensation deriving from discretionality. The firms considered in the sample are not all with more than 80.000 employees so, this value estimated seems to be quite high given the fact that in the sample some firms with less than 80.000 employees have a positive D.
The estimates of equation 3 also imply another relevant fact: an increase in managerial discretion has a greater marginal impact on managerial compensation the greater employment is, so for bigger firms. This finding it is consistent with the managerial discretion hypothesis in that freedom from outside monitoring and take-over is likely to increase with the size of the firm.
In Table 2 there is also the estimation of $\ln w_n = a + bD + e \ln N + fD \ln N + gO + hS$ where the variables O and S are two dummies representing O the ownership of the firm and S the sector in which the firm is operating.
To be in a private firm allows higher pay of about 0.40003 (in log value). The t-value is significant at 5% level of significance. The service sector pays more than the manufacturing sector. The differential in the level of reward between the two sectors is -0.020370 (in log value). The t-value is not significant at 5%.

6 CEO reward, ownership, performance and board control

Now, the association between the level of CEO compensation, composition of board, firm's performance and the nature of ownership is examined with a cross-sectional multiple regression

$$COMP = \alpha + \beta_i \mathrm{P}_i + \gamma_j \mathrm{O}_j + \delta_k \mathrm{B}_k + \varepsilon \quad (4)$$

Regression of CEO compensation is computed on firm performance (P), ownership structure (O) and board control variables (B). The expected signs for some of the considered variables are the following:

Non-executive	- (?)	Busy directors	+
Sales	+	Old	+
Public ownership	-	Private ownership	+

To test some different hypothesis we split data in two different panels. One considering privatised firm in manufacturing sector (British Aerospace, Rolls Royce, British Steel) and another considering Public Utilities and services (British Gas, British Telecom, British Airways and British Rail).
In Table 3 we have the estimations of CEO reward (COMP). The variables connected to performance are two: Logsales and Profsales. The value of this variable is not in log term since the value assumes sometime a negative sign.

Table 3 Estimating $COMP = \alpha + \beta_i P_i + \gamma_j O_j + \delta_k B_k + \varepsilon$

	Aggregate Sample*			Manufacturing **			Service ***		
Variable	**Value**	**Std.Error**	**t-prob**	**Value**	**Std.Error**	**t-prob**	**Value**	**Std.Error**	**t-prob S**
Constant	12.865	1.1548	0.0000	9.6838	1.9499	0.0000	17.683	3.5230	0.0000
nonexec	1.4652	0.32408	0.0000	0.94880	0.70677	0.1860	1.3942	0.47059	0.0047
busy	1.3657	0.74527	0.0698	0.91629	1.1193	0.4172	1.7767	1.0976	0.1119
old	-2.3315	0.50070	0.0000	-2.5994	0.76109	0.0013	-1.7584	0.73012	0.0198
Profsales	0.51906	0.53135	0.3309	0.34097	0.71505	0.6357	1.1926	0.13544	0.0000
logsales	0.13022	0.068060	0.0683	0.11239	0.06834	0.0907	0.45724	0.22233	0.0451
Ownership	1.0156	0.075359	0.0000	0.80270	0.11205	0.0000	1.1926	0.13544	0.0000
Tests	R^2=0.77	F=57.12 [0.00];	DW=2,12	R^2=0.763	F= 24.80 [0.00];	DW=1.42	R^2 = 0.816	F= 36.41 [0.00];	DW= 1.44

****109 observation ; **53 observations*** *British Steel, British Aerospace and Rolls Royce;* ******56 observations*** *British Gas, British Telecom, British Rail and British Airways*

The variable Ownership is significant. In setting the level of reward, Ownership (Public/Private) matters. This could be connected to the different way in which manager can extract private benefit in public firm or that public Principal has got less information or more objectives.

The coefficients of the set of variables connected with the Board are significant (even if Busy is significant at 7% level). The sign of Non-executive is positive even if could be expected negative since non-executive directors control in an "independent" way CEO. This sign of this variable can be explained: non-executive captured by CEO, interlocking position between non-executive around different firms, more power (and more influence) of a smaller number of executive directors (4 executive can play better a "team game" than 8). So adding non-executive directors increases the level of reward of CEO.

Busy and old have got a significant and again not surprising sign. Adding a busy director increases the level of reward. A busy director has less information or time since it has to manage several firms. For the old director the sign obtained it is negative even if it could be expected to be positive since the idea used here was that old directors were with less incentive to monitor management and CEO but this negative sign could be an explanation of the bigger and wider experience that a "old" director has got.

The coefficient of Profsales has a non-significant t-value while Logsales is significant at 7%. The signs are as expected.

In the manufacturing sector, results are similar even if the magnitude of values is slightly different. Again, the coefficient of Profit over sales is positive even if the t-ratio is high. The coefficients of the variables "busy" and "old" have the same sign than in the aggregate estimation. The variable ownership is again extremely important and it confirms that in the manufacturing sector a shift in the ownership from public to private increases the level of reward of CEO.

The constant, a sort of fixed salary independent from performance and other variables, is significant even at 1% level.

In the Service sector, the value of the coefficient of the variable logsale is bigger. Again, the small significance of the t-ratio does not help us a lot to achieve some strong conclusion about this variable. The ratio profsale has a positive sign that means that increase in profitability gives an increase in the level of reward but again the small significance of the t-ratio does not allow strong conclusion.

The variables about the Board maintain the same sign of the manufacturing sector and of the aggregate sample. Again, the variable Ownership is highly significant and even in the service sector a shift in ownership means a relevant raise in management reward. The coefficient of the constant is significant as well.

Comparing the two sectors, we note that in the service sector the value of the constant is higher. The fixed salary, independent from performances, board and ownership is higher in the service than in the manufacturing sector. This can be seen as a sort of insurance of management in a sector that has a higher level of uncertainty, a much more flotating demand and a sort of dependence from the manufacturing sector. Ownership is important in both sector but a bit more relevant in the service sector. To face a private principal in a sector where there is a highest level of uncertainty gives a highest level of pay. This can be seen as an extra-remuneration for the management since it has to work more to obtain "clear" information.
The coefficient profsales has the same sign but again is more relevant in the service sector.
In general, it seems that in the service sector there is some more variability in the level of reward than in the manufacturing sector and that this variability is connected to the level of performance achieved in the sector. A "good" year in the service sector pays more than in the manufacturing sector. If the performances are at a low level in both sectors, the level of the basic salary is again higher in the service sector.
All the previous conclusions are based on the fact that the sample service and manufacturing includes just privatised firms and not all the firms in the sector so, the previous analysis applies to privatised firms in manufacturing and service sector.

7 Excess CEO compensation and firm performance

After estimating regression (4), we can estimate which part of reward is not related to firm performance but only to ownership nature and to board composition. A possible way, to do this (Core et al. 1997), is to compute the following linear combination for each CEO:

$$PEC = \sum_j \hat{\gamma}_j O_j + \sum_k \hat{\delta}_k B_k$$

where PEC is the predicted excess compensation and the estimated (^) coefficients on ownership and board composition variable are that one estimated with eq. 4. PEC represents the predicted component of compensation arising only from the board composition and nature of ownership. We summarised all the results obtained in Table 4
We noted in our study that compensation increases in the last years (see Picture 1). This is basically due to the presence of more "private" firms in the sample. As we said, ownership matters and matters a lot.
In Table 4 the excess of compensation is calculated as a quota of total reward.
We show here a fragmented version of the estimation but in a less fragmented study we note that the average excess of compensation in the public sector is about 4,90% with a standard deviation of 1,2 while the average excess of compensation in private firms is about 14% with a standard deviation of 1,90. Again (if we compare with the results of model 1) to be in the private sector gives an excess of compensation higher than the one achieved in the public sector. Just recalling the results achieved in the previous bureaucratical model, we have to remember that, being in the private sector was a facility to achieve a higher managerial discretionality.

Picture 2 Excess of compensation in different sectors and under different ownership

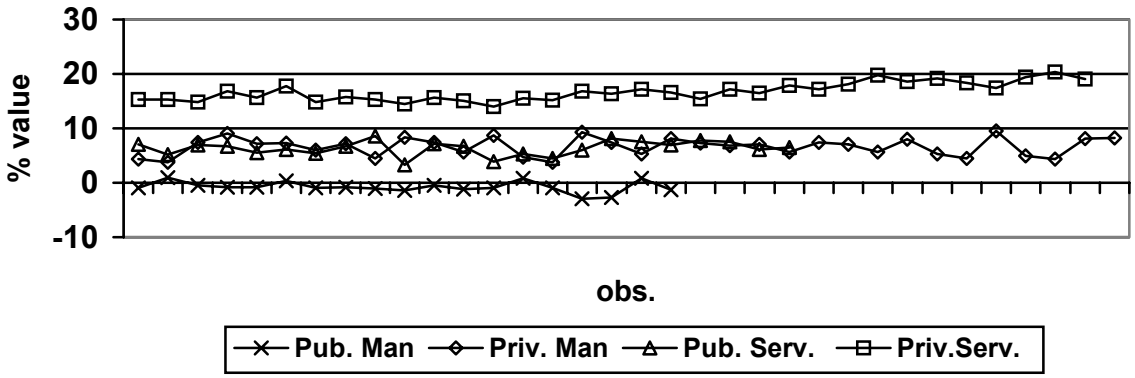

Table 4 Excess of compensation: percentage value of total reward. Manufacturing and Service in Public and Private context

% Excess in manufacturing sector: public firms		% Excess in manufacturing sector: private firms		% Excess in service sector: public firms		% Excess in service sector: private firms	
-0,97194	0,863407	4,384582	5,35243	7,081873	7,498495	15,24365	17,17876
0,951961	-1,27974	3,719227	8,080363	5,200932	6,918333	15,292	16,63601
-0,49826		7,460101	7,343864	6,974584	7,819774	14,81202	15,41707
-0,85421		9,002389	6,765438	6,763699	7,527655	16,81111	17,12055
-0,79455		7,147593	7,002997	5,570288	6,124889	15,6878	16,49813
0,295229		7,334182	5,663962	6,106036	6,513465	17,7631	17,89221
-0,92539		5,957509	7,381458	5,386968		14,78551	17,15127
-0,82966		7,213301	7,044859	6,699152		15,77627	18,09886
-1,01604		4,487542	5,656003	8,575387		15,34477	19,7939
-1,39496		8,322598	8,043001	3,317226		14,51431	18,56451
-0,50216		7,400658	5,237761	7,205496		15,68214	19,21668
-1,22489		5,638503	4,437903	6,650533		15,07724	18,37509
-0,99544		8,655253	9,562205	3,938461		14,03424	17,42191
0,814001		4,686716	4,937776	5,260574		15,54477	19,44623
-0,9682		3,810101	4,29981	4,484135		15,20713	20,3851
-2,89569		9,251815	8,158613	6,003762		16,85547	19,07182
-2,6683		7,402249	8,251435	8,061272		16,3004	
Avg	**-0,78394**	**avg**	**6,620418**	**avg**	**6,334043**	**avg**	**16,75758**
std dvt	**0,990085**	**std dvt**	**1,639007**	**std dvt**	**1,283663**	**std dvt**	**1,656173**

Table 4 it gives a fragmented analysis differentiating the public and private firms for the sectors in which they operate. The values in this table have been obtained using the estimation done for the manufacturing and for the service sector in a fragmented way (see Table 3 for details on the values of parameters used). The lowest excess of compensation is in public firm operating in the manufacturing sector (-0,78%), after that, we have a 6,33% of excess of compensation in public firms operating in the services sector. This value it is similar to the one of private firms operating in the manufacturing sector (6,62%) while the highest excess of compensation uncorrelated with the performance of the firm is for private firms operating in the service sector (16,75%).

8 Conclusion

In this work, we examined two different and independent models of managerial compensation applied to the main UK privatised firms. The results obtained show strong

similarities. For instance, if we compare the value obtained with the second model for service in public and private hand, we see that a change of ownership implies an increase of about 10% in the excess of compensation. This is perfectly consistent with the finding obtained with the bureaucratical model where we found the presence of higher managerial discretionality in private firms and in service sector. This is true for all the results obtained in the paper. In fact, even in the manufacturing sector we find a smaller but again positive (6%) increment deriving from shift in ownership. At the same time we found that not only ownership matters but even Board composition. The presence of non-executive, old and busy Directors gives different results in determining managerial compensation. This can give some empirical evidence in the current discussion nowadays open on the effectiveness of CG systems and Codes. We can summarise all the previously achieved results in the following way: when we have to implement a programme of privatisation we have to consider that probably we will have an improvement in performances of the firms (see D'Orio 2001). At the same time, the price that we have to pay to our management will be a higher discretionality and a higher excess of compensation compared with the increase in performances. This is correlated even to the sector in which the firm operates and if the firm is in the service sector the price that we have to pay is the highest one.

References

AGRAWAL, A.; KNOEBER, C. R. (1998)*; Managerial compensation and the threat of takeover*; Journal of Financial Economics; 47(1998) pg. 219-239

BARKEMA, H., GEROSKI, P., SCHWALBACH, J.,; (1997); *Managerial compensation, strategy and firm performance: an introduction*; International Journal of Industrial Organization 15, 413-416 1997.

BRICKLEY, J., COLES, J., TERRY, R., 1994; *The Board of Directors and the adoption of poison pills*.; Journal of Financial Economics, June 1994 35(3), pp. 371-90

COLE R.A., MEHRAN H. (1998); *The effect of changes in ownership structure on performance: Evidence from the thrift industry*; Journal of Financial Economics 50 (1998) 291-357

CONYON M., GREGG P., MACHIN S. (1995); *Taking care of business: executive compensation in the UK*; The Economic Journal; vol.105 no. 430 may 1995 pg. 704-714

CONYON, M.J., GREGG P. (1994); *Pay at the top: a study of sensitivity of top director remuneration to company specifi shock*, National Institute Economic Review 3, 83-92

COSH,-A.; HUGHES,-A. (1996); *The Changing Anatomy of Corporate Control and the Market for Executives in the UK*; University of Cambridge, ESRC Centre for Business Research Working Paper: WP49, December 1996, pages 18.

CRYSTAL, G., (1991). *In search of Excess: the overcompensation of American executives*. W.W. Norton and Company, New York

DENIS, D.J., DENIS, D.K., SARIN A. (1997); *Ownership structure and top executive turnover*; Journal of Financial Economics 45 (1997) 193-211

D'ORIO G. (2001) ; *Privatization and Corporate Governance. Efficiency and managerial behaviour*; PhD Thesis University of Naples 2001

FRANKS J., MAYER C., RENNEBOOG L. (1998); *Who discipline bad management?* Working paper Tilburg University

HALLOCK, K.F., (1997). *Reciprocally interlocking boards of directors and executive compensations*. Journal of Financial and Quantitative Analysis 32, 331-344

HOLTHAUSEN A.; LARCKER (1996); *The financial performance of reverse leveraged buyout*. Journal of Financial Economics 43, 301-339.

GARVEY,-G.-T.; GRANT,-S.; KING,-S.-P. (1996); *Talking Down the Firm: Short-Term Market Manipulation and Optimal Management Compensation*; Australian National University, Working Paper in Economics and Econometrics: 297, January 1996, pages 12.

JENSEN ,M. (1993). *The modern industrial revolution, exit, and the failure of internal control systems*. Journal of Finance 48, 831-880

JENSEN, M.C., MURPHY, K.J., (1990) *Performance pay and top managers incentive*s. Journal of political economy 98, 225-264

KANG, J.-K.; SHIVDASANI, A. (1995*) Firm performance, corporate governance, and top executive turnover in Giappone*; Journal of Financial Economics; 38 1995 pg. 29-58

KLEIN,-A. (1998); *Firm Performance and Board Committee Structure*; Journal-of-Law-and-Economics; 41(1), April 1998, pages 275-303.
KOLE, S., LEHN, K; (1997) *Deregulation, the evolution of corporate governance structure, and survival* in American Economic Review papers and proceedings, May 1997 vol. 87 no. 2 pag 421-425
KOSE J.; SENBET,-LEMMA-W. (1998); *Corporate Governance and Board Effectiveness*; Journal-of-Banking-and-Finance; 22(4), May 1998, pages 371-403.
LAMBERT, R., LARCKER, D., WEIGELT, K., (1993)., *The structure of organizational incentives*. Administrative Science Quarterly 38.438-461
MAYER,-C. (1998); *Financial Systems and Corporate Governance: A Review of the International Evidence*; Journal-of-Institutional-and-Theoretical-Economics; 154(1), March 1998, pages 144-65.
MUELLER D.C., YUN S.L.; (1997); *Managerial discretion and managerial compensation*; International Journal of Industrial Organization 15 (1997) 441-454
MURPHY, K.J., (1985) *Corporate performance and managerial remuneration: an empirical analysis*, Journal of Accounting and Economics 7; 11-42
ROSEN, S. (1992) *Contracts and market for executives;* in Werin L. And Wijkander H (eds.) Contract Economics, Oxford: Blackwell, pp 181-211
SMITH,-B.-R.-D.(1996);*Establishing Effective Oversight over Public Enterprises: The Role of Boards: The Case of Canadian Railways* ;in Pannier,-Dominique, ed. Corporate governance of public enterprises in transitional economies. Technical Paper, no. 323. Washington, D.C.: World Bank, 1996, pages 120-26.
WAGNER, J.A.; STIMPERT, J.L.; FUBARA, E.I; (1998) *Board composition and organizational performance: two studies of insider/outsider effects*; Journal of managerial studies Vol 35/5 Sept. 1998
WARTHER,-V.-A. (1998); *Board Effectiveness and Board Dissent: A Model of the Board's Relationship to Management and Shareholders*; Journal-of-Corporate-Finance:-Contracting,-Governance-andOrganization; 4(1), March 1998, pages 53-70.
WILLIAMSON,-O.-E. (1996) *Corporate Finance and Corporate Governance* ;in Williamson,-Oliver-E. The mechanisms of governance. New York and Oxford: Oxford University Press, 1996, pages 171-94. Previously published: [1988].
YERMACK, D., (1996); *Higher market valuation for firms with small board of directors*. Journal of financial economics 40, 185-211.