1 Firm Performance, Corporate Governance and Managerial Reward

Giovanni D'Orio
University of Calabria
Department of Economics and Statistics
email: gio.dorio@unical.it
office:+390984492461

Abstract

The aim of the paper is to test two hypotheses: on one hand, the aim is to analyse if firm's executive rewards can be explained just by the hierarchical structure of the firm (Model One) while on the other we want to study the correlation between the level of Chief Executive Officer (CEO) compensation, the quality of firms' corporate governance and firm performances (Model Two). A comparison of the results obtained will be helpful for two reasons: if the level of reward is not only a function of hierarchy (Model One) or economic performances (Model Two) it will be interesting to compare the excess of compensation due to managerial discretion obtained in the two models and check if the results obtained show a similar trend. Furthermore, if the excess of compensation due to managerial discretion will be positive, model two will help us to understand if this "inefficiency" is due to a weak corporate governance structure or to the nature of the ownership of the firm.

JEL Codes:G34, L22, M52
Keywords: Managerial reward, Corporate Governance, Privatisation

1.1 Introduction

Most of the current interest by economists in the subject of managerial compensation arises from an interest in principal-agent problems (see Barkema *et al.* 1997). The principal-agent theory emphasises the shape (see Agrawal *et al.* 1998) rather than the level of pay as a source of incentive for senior managers. Empirical evidence shows that there is indeed a statistically significant relationship between managerial pay and firm performance but for the majority of top managers this relationship is quite weak (see Murphy, 1985, Jensen and Murphy 1990 among the others). This can be explained as a combination of a "reputation" effect and the effect of competition on the demand for top managers. Some firms will bid in a sort of "auction" to be able to hire one of the top managers (the reputation effect plays a key role in defining the manager as a top manager) and this will conduct the manager to choose a firm that will offer a very high "entry wage".

One of the potential effects of governance that will be considered is on incentives. Principal-agent models suggest that to align interest of shareholders and managers, there should be a close relation between executive remuneration and corporate performance measured in particular by the value of the firm or by the annual results that the firm is achieving (see Mayer 1996). The problem with this point is that it is very difficult (where difficult means increasingly costly) to write and enforce a contract that specify every possible action and state of the world (see Williamson 1996)

This paper examines two different models of managerial rewards. Model One is a so called "hierarchy model" (see Mueller and Yun 1997) while Model Two is a linear combination of factors affecting the composition of reward and some control variable connected with corporate governance and nature of ownership (public/private). The aim of the paper is to test two hypotheses: on one hand, the aim is to analyse if firm's executive rewards can be explained just by the hierarchical structure of the firm (Model One) while on the other we want to study the correlation between the level of Chief Executive Officer (CEO) compensation, the quality of

firms' corporate governance and firm performances (Model Two). A comparison of the results obtained will be helpful for two reasons: if the level of reward is not only a function of hierarchy (Model One) or economic performances (Model Two) it will be interesting to compare the excess of compensation due to managerial discretion obtained in the two models and check if the results obtained show a similar trend. Furthermore, if the excess of compensation due to managerial discretion will be positive, model two will help us to understand if this "inefficiency" is due to a weak corporate governance structure or to the nature of the ownership of the firm.

The paper is organised as it follows: Section 1.2 contains a literature review on the topics, Section 1.3 describe the sample of data used for the estimations. In Section 1.3.1 we show the trend of managerial reward in the sample of firms studied while from In Section 1.3.2 until Section 1.3.5 we describe the set of variable used in the estimation process. As already said, two models have been analysed: in Section 1.4 we will show a model that connects reward with the level of bureaucracy observed in the firm, Section 1.5 analyses the expected results and Section 1.6 shows the results obtained if we consider the reward as a result of the internal bureaucracy of the firm. In Section 1.7 we illustrate the second model of estimation in which the reward is a function of firm's performances and in Section 1.8 we provide the results of this second estimation differentiating between manufacturing sector and service sector. In Section 1.9 we introduce a tool to examine the excess of compensation. Here we will observe which would be the optimal level of reward if we consider only performances and we will compare this value with the real (observed) level of compensation. Section 1.10 provides some explanations of the results obtained by this model and Section 1.11 concludes the Chapter summarising the results obtained with the two models.

1.2 Literature review

Empirical analysis of the relationship between Board members (or executive or CEO) and corporate performance has a long history. Much of this work has focused on the relative importance of profits and size of company on managerial remuneration (Murphy 1985, and as a survey Rosen 1992). However, the literature about corporate governance, firm performance and CEO compensation is quite controversial. There is evidence of inappropriate corporate governance structure to motivate the most efficient behaviour from CEO but, at the same time, the empirical evidence is quite confused and it does not give clear guidelines for an optimal governance structure. The great majority of existing evidence on principal-agent theory is based on United States data sources and it is not entirely obvious that these results can be generalised to other settings since external control systems differ across countries, tax regimes differ across countries, in Japan and in Europe collective decision making is more common than in the US and this makes it more difficult to assess individual effort.

One of the few works[1] based on non-US data (Conyon et al. 1994 and 1995) examines the impact of corporate governance innovations on top Directors compensation in some UK firms. The evidence is that Director compensation and current shareholder returns are positively correlated. There is also some evidence that governance variables[2] play a role in shaping top Director pay. Companies that adopt remuneration committees are seen to have lower growth rates in top Director compensation. Separating the roles of CEO and chairperson, however, appears to play no part in shaping Directors' compensation. But the last point is quite controversial in the literature even if, as pointed out, the comparison that can be made are international and there are several different variables to be considered that could affect this finding.

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[1] While the literature on the topics based on US or Canadian data set is quite extensive, the work based on non-US firms are really few. This is basically due to the fact that in Europe there are still great problems connected with the data collection because, with few exemptions, the firms have not some clear obligation on publishing in the Annual Report data on Corporate Governance. UK is an exemption to this and some work based on UK data are Conyon and al. 1995, Franks and al. 1998, Conyon and Gregg 1994, Main 1991

[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).

Another relevant paper based on UK data is the work of Cosh and Hughes (1996). In their study, the authors examine changes in the pattern of CEO and Executive Directors' pay and the extent to non-executives' and financial institutions' involvement in the governance structure of giant UK companies over the period 1980-1996. Another interesting feature of the work is that they study the evolution of relationship in the Board. It reveals that 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. There are signs of a more active inter-company market in junior executives but the most striking change in the sample is the widening of the pay gap between CEOs and other Directors. The current agenda for reform of the Board structure of UK quoted companies has done little to address the wider issues of community responsibility raised by Bearle and Means in 1932. Crystal (1991) argues that the Board of Directors are unable to set the appropriate level of compensation since outside the CEO hires Directors and the CEO can remove them. This gives to the Directors (internal and external) an incentive not to act for the welfare of the shareholder; they may be unwilling to take positions adversarial to the CEO and in particular to issues concerning CEO compensations.

Mueller and Yun (1997) have examined two hypotheses regarding the determinants of managerial compensation. In their first model they see the manager as being hired by the principal to provide managerial services and see their reward as a purely functional return for services rendered. In the second model they allow the managers to set their own salaries. The model uses estimates of returns on investment to measure the degree to which managers have and exercise discretion in the investment policy. They use this model to explain why some managers receive higher salaries than are predicted by the standard model of bureaucracy.

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 perform badly. Furthermore, there is little equity ownership by executive and non-executive Directors on the Board and this does not give long-run incentives, the numbers of members of the Board is usually higher than the one that could lead to faster and collective decisions, and too many times the same person has the two relevant roles on the Board namely, CEO and Chairman. Several codes of corporate governance suggest that this position should be split (i.e. see the Combined Code for UK 2000) and when this is not possible, the Annual Report has to be clear in specifying the reasons for this anomaly.

Kang and Shivdasani, in their work of 1995, examine the role of corporate governance mechanism in top executive turnover in Japanese corporations. This study is interesting since is based on non-US data (even if it is consistent with the evidence from US data) and shows that the likelihood of non-routine turnover is related to return on assets and on excess stock returns but it is not related to industry performance. They show that even the stakeholder structure of the firms matter for the non-routine turnover and there are performance improvements subsequent to non-routine turnover and outside succession. On the same field, Denis *et al.* (1997) find that the probability of top executive turnover is negatively related to the ownership stake of officers and Directors and positively related to the presence of an outside blockholder. In addition, the likelihood of a change in top executive is significantly less sensitive to stock price performance in firms where the quota of shares held by managers is relevant.

Lambert *et al.* (1993) find a positive relation between the CEO compensation and the percentage of outside Directors. At the same time they find that CEO receives higher pay when they have appointed the majority, or a relevant number, of the Board members. Hallock (1997) finds that CEO compensation is higher in firms with interlocked non-executive Directors.

A branch of literature is oriented to examine which are the relationships between firm performance and Board structure. Even here the results are highly controversial. For instance, in a work of Rosenstein, and Wyatt (1994) shareholder wealth is affected by the proportion of outside Directors and this is documented by a positive stock price reaction at the announcement of the appointment of an additional outside Directors while in a more recent work of Yermack (1996) the stock performance of the firm is not affected from the extra-presence of outside Directors. May be times are changing or there are other variable that could explain this behaviour (from the two works, for instance, is not possible to understand if the extra-non-executive Director considered by Yermack is independent or strongly interlocked or appointed by the CEO). In the same paper, the author finds that firm value is significantly

higher when officers and Directors have greater ownership. In Franks, Mayer and Renneboog (1998) four parties to discipline poorly performing management are considered: existing holders of large blocks of shares, investors acquiring new shareholding, creditors and non-executive Directors. The results of the paper shows that all four parties are directly involved in monitoring management (for more details see Franks, Mayer and Renneboog (1998)) but there is no comparison of their relative significance. Another interesting result of this paper is that the non-executive Directors of the UK firms considered are less effective than the non-executive Directors of the US firms are. Take-over is usually seen as a possible threat to discipline ineffective management[3]. Shivdasani (1993) finds that hostile take-overs are more likely when target outside Directors own less equity and serve on fewer Boards. On the other hand, Holthausen and Larker (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 causes a shift in how remuneration is shaped. The sign of the total of the two effects is positive. Therefore, the aim of this work is to understand which role governance plays in the determination of managerial reward and at the same time, studying managerial discretion, the aim is to try to understand if there is a correlation between managerial discretion and managerial compensation. If this relationship exists it could be a possible explanation of non-optimal (given firm's performance) reward as a possible extra incentive that the owner decides to give to the manager to avoid the use of this discretion and as a direct result of the managerial discretion when he is able to influence the reward committee of the firm. For other key articles that will help to identify important determinants of effective governance and reward see also Sections 1.3.3 to 1.3.5.

1.3 The sample and some data considerations

The sample of firms includes some of the major British privatised firms[4]. The reasons for this choice are that, for the purpose of the paper, it will be useful to understand if there is a correlation between the nature of ownership and management discretion. The level of reward that helps to understand if we are in presence of high managerial discretion depends on many factors: according with Mueller and Yun (1997) the most important three factors are: the wage differential between two people in an immediate hierarchical relationship, the number of people supervised by a supervisor (span) and the number of hierarchical level in the firm. If there is managerial discretion, probably the most direct way to observe it is to look at the level of reward of the top managers of the firms. This gives a direct connection to the effectiveness of the system of corporate governance in trying to reduce as much as possible managerial discretion. The measures to do this is, as signalled in basically all the Codes of Corporate Governance, to increase the effectiveness of the Board of Directors. The effectiveness of the Board is influenced by the number of Executive Directors and Non-executive Directors, by the age of them, by the fact that the Chairman and the Chief Executive Officer positions are held by the same person and by the interlocked relationship that the members of the Board have.

For these reasons the nature of data needed is very "microeconomic" and it is really difficult to obtain it in the detail needed. For each firm original data were collected examining each single Annual Report and checking member-by-member of the Board the consistency of the data needed. Table 1-1 shows the institution considered, the year of privatisation, the years of beginning and ending of the sample for the firm considered.

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[3] I am not considering in this survey all the literature about the advantage of takeover in privatized firms and the possible incentives that it gives but several works gives lots of evidences on takeovers as a tools to improve management performance.

[4] The firms are British Telecom, British Gas, British Steel, British Aerospace, Rolls Royce, British Airways and British Rail. A difference with the two previous chapters is that in this study will be conducted a panel analysis that allows us to use the data collected for British Airways and British Rail.

Table 1-1 Date of privatisation of the firms studied

Firm	Year of the sale	Years in the sample
British Telecom	1984	1982-1998
British Gas	1986	1980-1997
British Steel	1988	1983-1998
British Aerospace	1981	1978-1997
Rolls Royce	1987	1978-1997
British Rail	1993	1980-1993
British Airways	1987	1984-1997

In the next five sub-sections there is a detailed description of the data collected for each of the variables used in the estimation.

1.3.1 Trends in managerial reward

In Table 1-1 there is the period of privatisation of the sample firms. A common result of the literature on management rewards (see Cole and Mehran 1998, Wagner *et al.* 1998) is that the level of pay of management in private firms is higher than the level of rewards in public firms (see Main 1991, see also Curwen 1997). This happens for all the firms considered in this study. The data considered are average remunerations and they do not include stock options (data were not available). Usually there is a difference between the level of remuneration of executive members and non-executive members. Furthermore, after the adoption of the Code of Corporate Governance some Boards added more non-executive Directors so, given the discrepancy of the two kind of compensation, this can be seen as another factor that could produce an underestimation of the privatisation effect on reward. The increase of non-executive Directors in the Board started around 1992. Two facts have a decreasing effect on the absolute magnitude of the increase in executive compensations deriving from privatisation: the bigger number of non-executives on the Board, which usually receive a smaller reward than their executive counterpart, and the fact that we considered a non-weighted average. Even considering this fact the effect of the shift in ownership was quite clear: after the privatisation there was a substantial increase in the level of reward of CEO. The nature of ownership seems to be an important factor to be considered if we want to analyse the level of reward of top managers.

1.3.2 CEO compensation

The variable COMP is defined as the direct compensation (salary plus bonus) of the CEO of the sample firms in company *i* at time *t*. The value is expressed in constant 1990 prices. This is the only measure of top Director compensation that is available using UK data in the Annual Report of the sample firms. Something that is important to point out here is that the ideal way to do the following estimation is to isolate a separate governance and performance effect for each of the different part of the compensation. So, for the CEO salary it could be better to take into account the insurance component of pay, and the bonus element could be related to company performance indicator (an amount of the ratio profit on turnover or profit on sales) The problem is that the data about management compensation reported in the Annual report are available only as a single observation (if we exclude the last two of three year since some companies in the Annual Reports from 1996 are publishing the various components of the reward). Another important consideration is to consider wider definitions of executive compensation. This would take into account important components as the estimated value of option holdings, shares and long-run incentives.

A relevant study using this indicator as long-term incentives for the management is the work of Garvey, Grant and King (1996) with Australian data. The authors analyse the optimal use of short and long-term share prices in management incentive contracts. An interesting feature of this model is that the short-term share price is determined even before the manager has made the effort choice and therefore cannot be informative in the standard principal-agent sense. Results show that when traders on the short-term market have as much information as the manager does, the manager is insured against short-term share price fluctuations. However, if the

manager has some private information that is relevant to the short-term share price, these insurance possibilities are reduced. When the manager is fully insured then he will have an incentive to "talk down the firm", to manipulate the short-term share price and so raises perceptions of his value added. This point can be even highlighted if we think that in any case, stock options payments are often connected to the stock exchange performance and not to the economic performance (see for a critique of the stock option method Guenter *et al.* 1999). This is important in those countries where the role played by financial market does not consider in an efficient way the connection between firm performance and firm value and where the financial markets are inefficient or very small.
Still on this point, stock options are subject to criticism for the fact that the manager will not lose anything if he will not use the option (in case the share value is too low) even if he will not be able to increase his level of wage plus bonus (as a criticism of stock options incentive plans see the work of Garvey *et al.* 1996).
Again, data needed to study and analyse stock options have been published in UK only in some Annual Reports (basically from 1995 until 1998) and that makes the series of data available quite small. Furthermore there are no a clear criteria to be used to value the stock option of the management since the value of the share sometimes is very variable during the year. To use just an average of the year value is not real since usually the best management behaviour is to exercise the option when the value of the share is at its highest level. Nevertheless, sometimes management does not use the option even when they could obtain a windfall gain because that could be seen as a sign that the value of the shares of the firms were at a maximum. That in an implicit way means that they think that in the future the price of shares will fall. For this set of reasons the salary plus bonuses compensation measure is the one that has been used widely in the past work on the subject (see Conyon and Gregg 1994, Garvey *et al.*1996).

1.3.3 Economic determinants of compensation

Larger firms with greater growth opportunities and more complex operations will demand higher-quality managers with higher equilibrium wages (see Core *et al.* 1999; also Smith and Watt 1992). A proxy used for firm size and complexity of operation is the volume of turnover or sales. Firm performance is measured using the accounting return on assets (computed as ratio of earning after taxes to total assets) and returns on turnover. Sales and turnover are considered for the year prior to the year in which compensation is awarded: the assumption here is that one of the elements that influence the fixed part of managerial reward of current year is the economic result achieved the previous year. The variable part of the remuneration, instead, is mostly influenced by the result of current year but, since this part is mainly based on stock options, as said, is not considered in this study for lack of data on the issue on the Annual Report of the firms considered in the period studied.

1.3.4 Board composition

Board composition is seen as an important determinant of performance and reward (see Wagner *et al.* 1998). Although no theoretical work exists (see Warther 1998) on the optimal size of Boards of Directors in a work of Kole and Lehn (1997) they observe that Board size is likely to contract after regulation or deregulation procedures. Smaller Boards result in less free-riding and promote more rapid decision making. In addition, some studies infer that outside Directors serve an important monitoring role (Brickley *et al.* 1994). An interesting result of the work of Wagner *et al.* (1998) is that, on average, the greater presence of outsiders is associated with higher performance (and so with higher remuneration) but so too is the greater presence of insiders. In that work (a meta-analysis of 63 correlation), instead of providing evidence of a positive outsider effect, the level of performance is correlated with the greater relative presence of either insider or outsider Directors. The relevant thing here (and the results of Wagner et al. 1998 work are a bit contrasting with this) is to point out that basically in all the main project of a Corporate Governance Guideline (see the Japanese, US, UK and German case the presence of outside Directors is seen as a form of control of the insider Directors leading to a better level (from the shareholders point of view) of performance and to a balanced structure of Board reward.

A good review of theoretical and empirical literature is the work of Kose *et al*. (1998) on the mechanisms of corporate governance and particularly:

i. In the internal mechanisms of corporate governance (e.g., corporate Board of Directors) and
ii. In ameliorating various classes of agency problems arising from conflicts of interests between managers and equity holders and creditors, and capital contributors and other stakeholders to the corporate firm.

Another relevant work on Board composition and firm performance is the work of Klein (1998) in which the author demonstrates a linkage between firm performance and Board composition by examining the committee structure of Boards and the Directors' roles within these committees. These findings are consistent with Jensen and Meckling's assertion (1976) that inside Directors provide valuable information to Boards about the firms' long-term investment decisions.

Therefore, given the structure of some previous works, we considered several possible situations that can influence the level of rewards in the Board. A short description of the meaning of some of the variables used is as follow:

i. If the CEO is the chairman of the Board "CEO is Board chairman" is an indicator variable equal to one if true and zero if the chairman is another Director (CEOCHAIR).
ii. Board size is the total number of Directors on the Board (BOARD).
iii. Inside-executive Director is the percentage of the Board who are managers, retired managers or relatives of current manager that are on the Board (EXEC).
iv. Outside Directors is the number of non-executive Directors on the Board as a percentage of Board size (NONEXEC)
v. Outside "old" Directors are non-executive Directors older than 65 (OLD).
vi. Busy Director is the percentage of Directors who serve on other Board as Chairman, CEO or executive or non-executive (BUSY).

The predicted signs of the variables are in section 1.5 for Model One and in section 1.7 for Model Two.

1.3.5 Ownership structure

Several empirical works (see Denis *et al.* 1997) used ownership structure as a control variable. This is because a different level of concentration in ownership can influence the way in which the shareholders are going to react to some uncorrelated reward-performance situations. A small group of shareholders has probably more motivations, power and information than a fractional group of small shareholders.

The usual way in which this variable is built is that if the share of the firm that is owned by the CEO is bigger than 5% the variable takes a value of 1, if the share quota is smaller than 5% the dummy variable assumes a value of 0. This is because these works consider small, medium and big size firms. In this work the ownership control variable is slightly different because it does not make any sense to think to a possible relevant ownership from the CEO given the fact that the firms are so big that is impossible to find a CEO relevant participation to the risk capital. In the work of Denis *et al.* (1997) they examine the role of ownership structure in the turnover and remuneration of top executives. They document an unusually high rate of corporate control activity in the 12 months preceding top executive turnover.

Another possible way to consider the structure of ownership, for instance, is to build some control variable if the firm has a concentrated ownership, or, in other words to see how much the ownership is dispersed between the shareholders. Even considering this kind of possible control variable does not make any sense given that the database include basically public companies that have all the same ownership structure (deriving from the way in which they were privatised) even if in some cases it is possible to observe a different dispersion of share ownership.

Therefore, given the previous analysis on the trend of the rewards during the years in privatised firms it seems that ownership matters. Therefore, the control variable ownership here is connected to the fact that it seems relevant to distinguish between publicly-owned and privately-owned firms. The variable will assume a value of 1 if the firm is private and a value of 0 if the firm is public.
Section 1.4 explains the hierarchical model where the managerial reward is a direct outcome of firm's internal hierarchy.

1.4 Model One: 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 at which level in the hierarchical structure of the firm these people are. The idea beyond this hierarchical model is that usually supervisor are paid more than supervisees are, bosses are paid more than people they supervise[5]. Let us call β the wage differential between two people in an immediate hierarchical relationship. If those employed at the lower level have a wage of w_0, his "hierarchical boss" will have a wage of βw_0. In addition, 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 levels, 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.
Using the hierarchical model we can derive (following Mueller and Yun 1997) the total employment of the firm. We need to know how many levels there are in a firm and how many people are supervised by a supervisor (span).

Calling the number of levels n and the size of the span s, the total employment of the firm *(N)* 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 is some evidence 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 (see Mueller and Yun 1997).

$$N = \frac{s^n}{s-1} \text{ solving for n will lead to :}$$
$$s^n = N(s-1)$$
$$n \ln s = \ln N + \ln(s-1)$$
$$n = \frac{\ln N + \ln(s-1)}{\ln s}$$
$$\text{taking in to account that } w_n = \beta^n w_0, \text{substituting for n will lead to :}$$
$$w_n = \beta^{\frac{\ln N + \ln(s-1)}{\ln s}} w_0 \text{ and moving to logarithm}$$
$$\ln w_n = \ln \beta^{\frac{\ln N + \ln(s-1)}{\ln s}} w_0 \text{ so}$$
$$\ln w_n = \frac{\ln N + \ln(s-1)}{\ln s} \ln \beta + \ln w_0$$

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

In this way, Equation 1-1 shows that the wage of a top-level manager is a linear function[6] of employment. The entry level is determined by market force or by a process of negotiation between unions and industry's representatives. Given that functional form

[5] A field where this theory probably does not apply is football. Here players are paid probably more than the manager but even here there is a nice story about a famous manager of the late 1960s', Helenio Herrera that was refusing to train a team if he was not getting at least "1000 lire" more than the best paid player.

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

of the level of a top-manager wage there are several possible ways to increase managerial reward without any connection to firm performance and between them one way is just to create quite a small span and force an increase in the number of levels in the corporation hierarchy; another one is to act on the level of β at certain level of the firm's hierarchy. Therefore, 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 define the ratio c as $c_t = \frac{r_t}{i_t}$.

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 *0*. If the value of c is smaller than one, the value of D is a linear function of c and exactly *D=(1-c).* This assumption will have some effects on next Equation 1-2. since the fact that all variation in c are due to managerial discretion is probably not fully explaining the reality and does not consider external factors (such as elements that are out of managerial control such as a bad state of the world) that can influence r and i. Therefore, managerial discretion is here assumed to be measured by D *as a proxy* and basically considers managers as persons that can perfectly forecast the future value of r and i.

Considering that β is the required 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 1-1 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 $\beta' = \beta M^D$ we obtain:

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

For estimation reasons it is possible to rearrange Equation 1-2 as:

Equation 1-3 $$\ln w_n = a + bD + e \ln N + fD \ln N$$

where:

$$a = \ln w_0 + \frac{\ln(s-1)}{\ln s} \ln \beta$$

$$b = \ln M \frac{\ln(s-1)}{\ln s}$$

$$e = \frac{\ln \beta}{\ln s}$$

$$f = \frac{\ln M}{\ln s}$$

therefore, we can estimate Equation 1-3[7]

[7] 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.

The economic interpretation of Equation 1-3 is that the remuneration of the CEO is a linear (on the parameters) and direct function of two variables: manager discretion and total employment in the firm, where total employment can be seen as a proxy for firm dimension. As we observe in the last term of Equation 1-3 there is a 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 positive or negative correlation between size and discretion.

1.5 Model One: predictions and the estimated equation.

Considering the way in which the model was built, the two parameters *e* and *f* have to be both positive and smaller than one. In fact, if we consider a value of β smaller than 2 and the size of the span s bigger than five, *e* will be smaller than one. The value 2 and 5 are not arbitrary but based on all the empirical studies on this topic (see Mueller and Yun 1997 on this point).

Variable Name	*Definition of variables*	*Expected sign*
Constant (a)	$\ln w_0 + \frac{\ln(s-1)}{\ln s}\ln\beta$	**Positive**
D (b)	$\ln M \frac{\ln(s-1)}{\ln s}$	**Related to the number of employees**
Logemploy(e)	$\frac{\ln\beta}{\ln s}$	**Positive but smaller than one**
D times emp(f)	$\frac{\ln M}{\ln s}$	**Positive but smaller than one**
Time trend		**Positive**

If the value of M is smaller than 5 even the parameter f will be smaller than 1. To suppose a value of M bigger than five, even if possible, it seems unlikely. The constant, since it can be seen as a sort of fixed wages, has to be positive. The value of b depends on the number of employees of the firm. In fact, the effect of discretion on reward is given by $\frac{\partial \ln w_n}{\partial D}$ and this means that the influence on rewards is given not only by *b* but also by *f*. Therefore, it could be possible that, in small firms the discretion decreases the level of reward since it is much easier for the principal to control the manager. As the size of the firm increases, the cost of monitoring increases and so the level of monitoring will probably decrease. Therefore, *b* could assume positive or negative values. The equation $\ln w_n = a + bD + e\ln N + fD\ln N$ is a function of employment that is linear in logs. The entry level wage can be assumed to be dependent on market forces. Here, the level of final wage depends on the level of employment and on discretion. The function is linear. Probably there is some non-linearity in the model since some of the results obtained are not consistent with these hypotheses. The next session shows the results of the estimations.

1.6 Model One: results of the estimation, value of parameters and some comments.

In Table 1-2 there is the estimation of model 1 $\ln w_n = a + bD + e\ln N + fD\ln N + t$ with the value of the four parameters. Again, for clarity, the way in which the index *D* is built is specified in section 1.4. Given the nature of data, we used a 5th parameter representing a possible time trend. The sample of data consists of 99 observations of the sample of privatised firms.

Table 1-2 Estimation of Equation 1-3

Variable	*Coefficient*	*Std.Error*	*t-value*	*t-prob*
Constant (a)	9.0630	0.76721	11.813	0.0000
D (b)	-0.66731	0.37954	-1.758	0.0880
Logemploy(e)	0.18941	0.065915	2.874	0.0051
(b) times (e) = (f)	0.085505	0.060553	1.412	0.1613
Trend	0.022037	0.0012580	17.517	0.0000
$R^2 = 0.787441$ F(4, 91) = 84.279 [0.0000] RSS = 9.218277964 for 5 variables and 96 observations from 1978 to 1998				

Normality $Chi^2(2)$=1.6041 [0.4484]
Xi^2 F(8, 82) = 1.3043 [0.2530]
Xi*Xj F(13, 77) =1.1326 [0.3458]
RESET F(1, 90) =0.30475 [0.5823]

The value of R^2 is quite high but the *t-values* of some coefficients are not significant at the usual level of significance. All the tests carried for misspecification of the model, heteroscedasticity, null-hypothesis for all the parameters are significant so the model it is well specified and does not shows problems of heteroscedasticity or autocorrelation. Some coefficients are not significant at 5% level of significance (see the parameter *b* for discretion that is significant at 8.8% and the parameter *f* that is significant only at 16.13%). These results are not surprising if we compare them with those obtained in a similar study by Mueller and Yun (1997). In fact, the value of R^2 is higher in my study (Mueller and Yun achieve a R^2 of 0.27 see Mueller and Yun 1997 p. 448) and the parameter representing a part of discretion (b) is significant at 8% while Mueller and Yun do not provide the value of the t-test for this parameter. The fact that the parameter *b* is negative is not surprising since this does not mean that discretion decreases compensation. In fact, the effect on compensation is given from the value of the first derivative of the function. As seen below, the discretion is increasing in employment. The values of the parameters are as follows:

$$a = \ln w_0 + \frac{\ln(s-1)}{\ln s}\ln \beta = 9.0630$$

$$b = \ln M \frac{\ln(s-1)}{\ln s} = -0.66731$$

$$e = \frac{\ln \beta}{\ln s} = 0.18941$$

$$f = \frac{\ln M}{\ln s} = 0.085505$$

Using this information, it is possible to solve the system and find some values for the parameters to be estimated. The estimates of *e* and *f* are both positive and smaller than 1 as predicted.

The value of the parameters *e* and *f*, even if consistent with the prediction previously done, could suggest some non-linearity 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. Here we have to consider that the measure of managerial discretion, D, is only a proxy for a complex phenomenon.

If we take the first derivative with respect to discretion of the estimated function we obtain that $\frac{\partial \ln w_n}{\partial D} = -0.6673 + 0.085505 \ln N$. This means that at low employment levels an increase in managerial discretion (D) reduces managerial compensation but as the size of the firm increases, the partial derivative increases as well and become positive. The value of *lnN* for whom managerial compensation begins to rise with increasing managerial discretion is £7,804. This means that for all the firms with more than 2450 employees there will be an increasing managerial compensation probably deriving from managers' discretion. The firms considered in the sample are all with more than 2450 employees so, this estimated value seems to be consistent with the fact that in the sample all the firms with more than 2450 employees have a positive D.

The estimates of equation 4 also imply another relevant fact: an increase in managerial discretion has a greater marginal impact on managerial compensation the greater employment is (i.e. for bigger firms). This finding 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.

For completeness, in Table 1-3 there is the estimation of model 1:

$$\ln w_n = a + bD + e \ln N + fD \ln N + gO + hS$$

where the variables O and S are two dummies representing O the ownership of the firm, with the value 0 if the firm is public and 1 if it is private and S the sector in which the firm is operating with the value 0 if it operates in the service sector and with the value 1 if it operates in the manufacturing sector.

Table 1-3 Estimation of Equation 1-3: sector and ownership.

Variable	**Coefficient**	**Std.Error**	**t-value**	**t-prob**
Constant (a)	9.8007	0.93052	10.532	0.0000
D (b)	-0.80126	0.65063	-1.232	0.2214
Logemploy (e)	0.11875	0.078438	1.514	0.1336
(b) times (e) = (f)	0.071338	0.058027	1.229	0.2222
Ownership (g)	0.40003	0.10201	3.922	0.0002
Sector (h)	-0.20370	0.078450	-2.5965	0.0048
Trend	0.017242	0.0017556	9.821	0.0000
$R^2 = 0.819245$ F(6, 89) = 67.23 [0.0000] RSS = 7.839009647 for 7 variables and 96 observations				

Normality Chi^2 (2)= 1.1683 [0.5576]
Xi^2 F(10, 78) = 1.2656 [0.2645]
Xi*Xj F(24, 64) = 1.1724 [0.3002]
RESET F(1, 88) = 9.5102 [0.0027] **

The value of R^2 is high but the RESET test is significant so we cannot reject the hypothesis of misspecification of the model. The meaning of the estimation and of the dummies is the following. To be in a private firm allows a higher pay of about 0.40003 (in log value). The t-value of this coefficient it is significant at 5% level of significance. To be in the service sector is better than to be in the manufacturing sector. The differential in the level of reward between the two sectors is -0.20370 (in log value). The level of rewards is smaller in the manufacturing sector. The t-value is significant at the usual level of significance. Given the fact that all the signs of the coefficients are the same as in the previous estimation, all the conclusions about the significance of some equations of the model and of *D* as proxy of managerial discretion, are similar to these previously made.

1.7 Model Two: CEO reward, ownership, performance and Board control

Instead of using a hierarchy model, the association between the level of CEO compensation (COMP) and the firm's performance, the composition of the Board and the nature of ownership are examined using a the following equation:

Equation 1-4 $$COMP = \alpha + \beta_i \mathrm{P}_i + \gamma_j \mathrm{O}_j + \delta_k \mathrm{B}_k + t + \varepsilon$$

Regression of CEO compensation is computed on its economic determinants and firm performance (P), ownership structure (O) and Board control variables (B). Since panel data is used, we consider a time trend *t* Firm performance is measured as turnover in constant prices or sales in constant prices depending on the available measure from the Annual Reports. The regression equation includes as a dependent variable the measure of CEO compensation (see Section 1.3 for Data Consideration) and includes as independent variables those defined in section 1.3.3 in Data Consideration. The expected signs for some of the variables are the following:

Table 1-4 Expected signs for the considered variables

Turnover	+	Non-executive	-
CEO is Board chair	+	Busy Directors	+
Public ownership	-	Non-executive more than 65 years old	+
Private ownership	+	Trend	+

To test some different hypotheses it is possible to split the panel of data into two different panels: one containing firms in the manufacturing sector (British Aerospace, Rolls Royce, British Steel) and another considering public utilities and services (British Gas, British Telecom and British Airways). The data trends reporting statistics are presented in Appendix pg.26

1.8 Estimating the reward: some alternatives

In this section there are two different estimations of the CEO reward (COMP). The equation estimated here is Equation 1-4. In Table 1-5 the variables connected to the performance are two: *logsales* that is the log of the value of sales or turnover of each single firm and *profsales* that is a ratio of profitability of the firm and it is equal to profit over sales. The value of this variable is not in log term since the fact that for certain value the variable assumes negative sign and it is not possible to calculate the log.

Table 1-5 Estimating Equation 1-4

Variable	Coefficient	Standard Error	t-value	t-prob
CONSTANT	12.865	1.1548	11.141	0.0000
NONEXEC	1.4652	0.32408	4.521	0.0000
BUSY	1.4921	0.74527	2.003	0.0512
OLD	-2.3315	0.50070	-4.657	0.0000
PROFSALES	0.51906	0.53135	0.977	0.3309
LOGSALES	-0.13022	0.078060	-1.668	0.0983
OWNERSHIP	1.0156	0.075359	13.477	0.0000
TREND	0,17146	0,03789	4,525	0.0000

Note that the variable Profit is included

$R^2 = 0.770664$; $F(6, 102) = 57.127$ [0.0000]; DW = 2.12; RSS = 11.58267097 for 7 variables and 109 observations

Normality $Chi^2(2)$= 5.2241 [0.0734]
Xi^2 F(11, 90) = 1.9274 [0.0459] *
Xi*Xj F(26, 75) = 1.4008 [0.1313]
RESET F(1,101) = 3.8702 [0.0519]

The variable ownership is significant. In setting the level of reward, ownership (public/private) matters and is relatively important (the value of the coefficient OWNERSHIP is positive, 1.0156, and significant). A possible explanation of this fact can be connected to the different way in which manager can extract private non-monetary benefit in public firms and the fact that public principal has less information or more objectives to consider.

The coefficients of most of the variables connected with the Board are significant. The sign of *non-executive Director* is positive even if could be expected to be negative since non-executive Directors have to control in an "independent" way the CEO. The fact that this sign is positive is not completely surprising since several hypotheses can be used to explain it: non-executive Directors captured by CEO, interlocking position between non-executive around different firms, more power (and more influence) of a smaller number of executive Directors (if in a Board the executive are 4 instead of 8, they can play better a "team game", they have more importance etc.). So adding more non-executive Directors increases the level of reward of the CEO.

Busy and *old* are significant and again the signs are not surprising. Adding a busy Director increases the level of reward. The fact that a busy Director has less specific information (managing several firms) or has several things to do, can explain the positive sign. For the old Director the sign obtained is negative even if it could be expected to be positive since the idea used here was that old Directors had less incentive to monitor management and CEO but this negative sign could be an explanation of the bigger and wider experience of an "old" Director.

The coefficients of the variables (sales and profit) connected with performance are non-significant, the sign of sales is negative and not significant and that means that reward is going to decrease if sales increase. This sounds quite strange but can be explained in two ways: the first reasons it is an econometric one and it is connected to the standard error of this variable. The non-significance of the t-value could mean that the value could assume even a positive value. The economic reason of a possible negative sign of this variable could be that in some circumstances, even if the level of sales or turnover has increased, the target that the CEO had was a bigger increase so this "slow" growth could be reflected in a possible decrease in reward. The second reason is that we have to take into account that the considered variable are in real terms so, combining the effect of a "smaller than expected" growth with a high inflation could bring a possible decrease of reward even if sales are increasing. The value of the coefficient of the other variable connected to the performance (*profit on sales*) has the right sign but, even here, we have to note that the significance of this value is quite low so we cannot real rely a lot in the interpretation of this parameter. We conducted some estimation without using the profit variable. In Table 2-4 of Appendix there are further estimations without using the profit variable. After comparing the value of R^2, RESET and other tests and considering the fact that to use a variable connected to profitability could give us interesting hint, we decided to use in the main text the estimation with the variable connected to profitability included (see section 1.9) to calculate the excess of compensation. In the previous model (Model One) we observed that the sector in which the firm operates was relevant to analyse the level of managerial discretion. Therefore, it can be interesting to see if there are some differences between firms operating in different economic sectors even in Model Two. For this reason, the next estimations are performed by splitting the previous sample into two sub-samples, one considering firms connected with the manufacturing sector (British Steel, British Aerospace and Rolls Royce) and the other considering the service sector (British Gas, British Telecom and British Airways). The results of the estimation are presented below:

1.8.1 Manufacturing:

The present sample includes 53 observations, all data are in real terms, and the firms included in the sample are British Steel, British Aerospace and Rolls Royce.

Table 1-6 Manufacturing sector: estimating compensation with the profit variable.

Variable	Coefficient	Standard Error	t-value	t-prob
CONSTANT	9.6838	1.9499	4.966	0.0000
NONEXEC	0.94880	0.50677	1.872	0.086
BUSY	0.91629	1.1193	0.819	0.4172
OLD	-2.5994	0.76109	-3.415	0.0013
PROFSALE	0.34097	0.71505	0.477	0.6357
LOGSALES	0.11239	0.13834	0.812	0.4207
OWNERSHIP	0.80270	0.11205	7.164	0.0000
TREND	0,1597	0,03145	5,077	0.0000

$R^2 = 0.763897$; $F(6, 46) = 24.805$ [0.0000]; RSS = 4.421675834 for 7 variables and 53 observations

For the manufacturing sector some of the previous observed anomalies disappear. The sign of the coefficient for the variable LOGSALES it is now positive (but non-significant). In the manufacturing sector there is a positive connection between increase in the level of reward and increase in the level of sales but the sales variable is statistically insignificant. As previously said, all the estimations are in real terms so sometimes we can have a nominal increase but in real term it is a decrease or we can have a target that is higher than the one achieved so we do not have a full exploitation of this correlation.

The coefficient of the ratio profit over sales is positive but the t-ratio is not significant. A significant value means that in the manufacturing sector an increase in the level of profitability raises the level of reward of management. However, here, given the fact that the coefficient is not significant, seems that the ratio profit/sales has not a significant impact on the level of reward. 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 the Chief executive of the sample firm.

The constant term, which can be seen as a sort of fixed salary independent from performance and other variables, is significant even at the 1% level. I tried the estimation with and without the variable profit over sales given above. However, this causes no differences in the signs of the estimated coefficients and it does not cause relevant difference in the magnitude of the coefficients.

1.8.2 Services sector

The sample includes 46 observations, all data are in real terms, and the firms included in the sample are: British Airways, British Gas and British Telecom.

Table 1-7 Services sector: Estimating Compensation with variable profit included.

Variable	Coefficient	Standard Error	t-value	t-prob
CONSTANT	17.683	3.5230	5.019	0.0000
NONEXEC	1.3942	0.47059	2.963	0.0047
BUSY	1.7767	1.0976	1.619	0.1119
OLD	-1.7584	0.73012	-2.408	0.0198
PROFSALE	2.4565	1.0358	2.372	0.0217
LOGSALES	-0.45724	0.22233	-2.057	0.0451
OWNERSHIP	1.1926	0.13544	8.805	0.0000
TREND	0,231456	0,06832	3,387	0.0000

$R^2 = 0.816808$; $F(6, 49) = 36.413$ [0.0000]; DW = 1.44;RSS = 5.821374962 for 7 variables and 56 observations

There are some differences from the manufacturing sector. The sign of the coefficient of the variable LOGSALES is negative and significant at 5%. As previously said in the analysis of the aggregate sample, this could be done to various reasons (see section 1.8). Furthermore we have to add the fact that in some of the sample firms, since the product that they give it is immaterial there are some

possible problems of measuring the "amount" of the service supplied and a process of valuation is used when the accounts are done. Again, the marginal significance of the sign does not help us to reach some strong conclusions about this variable.

The ratio PROFSALE is significant and has a positive sign, which means that increase in profitability gives an increase in the level of reward. For the first time the coefficient of the ratio PROFSALE has a significant value so here we can say that an increase in the level of profitability raises the level of management reward.

The variables for 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 rise in management reward. The coefficient of the constant it is also significant.

Comparing the manufacturing and service sectors, we have to note that in the service sector the level of the coefficient for the constant has a larger value. The fixed salary independent from performances, Board and ownership is higher in services than in the manufacturing sector. This can be seen as a sort of insurance of the management in a sector that has a more fluctuating demand and dependence on the manufacturing sector. Ownership is important in both sectors but more in the service sector. To face a private principal in a sector where there is a highest level of uncertainty gives a higher 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 in the two sectors but again is much more relevant in the service sector. We need to notice that PROFSALES is not significant in the manufacturing sector. This is an interesting result. Probably, in order to avoid agency problems, the owner of a firm in a sector with tangible output, can relate directly the level of reward to the observed output of the firm. This gives to the manager less incentive to use his/her discretion. For instance, the manager can work hard and this is proved by the high level of production achieved by the firm but for some cyclical reasons the profit could be negative. In this case the level of pay of the manager is not affected by the "cyclical" shock. In the service sector this is harder since the output is often intangible.

In general, it seems that in the service sector there is more variability in the level of reward than in the manufacturing sector and this variability is connected to the level of performance achieved in the sector and to the observability of the output produced. A "good" year in the service sector pays more than in the manufacturing sector. If the performances are at a low level in the two sectors, the level of the basic salary is again highest in the service sector. We can use an efficiency wage approach to explain the higher compensation in the service sector and the level of observability of the product. Given the fact that the principal cannot observe the manager's behaviour in the same way if we are in the manufacturing or in the service sector, the owner will pay a higher wage to the manager that produces the intangible good to increase the risk that the manager will afford if discovered cheating such as a loss of a higher wage.

We have to take in to account that 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 apply to the privatised firms in the manufacturing and service sector of the sample considered. Further research could be done to extend the analysis to all the firms in the relative sectors but this is not the focus of the current study (and there are data problems).

1.9 Model Two: excess CEO compensation and firm performance

After estimating Equation 1-4, it is useful to understand which part of the reward is not related to firm performance but to the ownership structure of the firm and to Board composition. To do this, a possible way, in accord with Core (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 (O) and Board composition variable[8] (B) are the ones estimated with Equation 1-4. We refer to this linear combination as "predicted excess compensation" because it represents the predicted component of compensation arising from the Board composition (non-executive, busy and old directors) and from the nature of ownership in excess of our controls for the standard economic determinants of compensation. Since we examine the ability of predicted excess compensation to explain the variation in scaled return measure (log sales and profit/sales), it is necessary to deflate predicted excess compensation for scale differences across observations. This is done by redefining predicted excess compensation as the ratio of the amount computed as:

$$PEC = \left(\sum_j \hat{\gamma}_j O_j + \sum_k \hat{\delta}_k B_k \right) / \text{Total Compensation} .$$

One interpretation of the results previously obtained with the estimation of Equation 1-4 is that certain Board and ownership structures enable managers to exercise influence over the Board and extract rents from the firms, including compensation in excess of their equilibrium (economic) wage rate. Another possible interpretation of the excess in CEO compensation is that the Board and ownership structure variables may proxy for some dimension of the firm's demand for a high quality CEO not captured by the other economic determinants. As a final point, the coefficients on the Board "quality" variables and on the ownership structure variables are also consistent with a trade-off between monitoring quality and the extent of incentive pay. Since increases in compensation risk should translate into greater levels of compensation for risk-averse managers, in equilibrium we might expect increases in the level of compensation as monitoring quality falls.

In the Appendix (Table 2-8) we show the excess of compensation resulting from each single determinant of reward excluding the performance related ones (PROFSALE and LOGSALES). In the same Appendix (pg. 26) there are the values obtained without including the PROFSALE variable.

In Appendix Table 2-7 there are also the aggregate values (in log term) of excess of compensation, the original level of compensation in log value and the theoretical value of the reward if we exclude the excess of compensation due to factors other than performance.

We note that excess of compensation increases in the later years and this is basically due to the presence of more firms in the private sector in these years. As we said, ownership matters and matters substantially. This is something that we noticed by observing the trend in Board and CEO compensation in section 1.3.1. As we said, the level of managerial reward increases when the number of private (better privatised) firms in the sample increases. This is probably due to the higher presence in the private sector of Pay Related Performance (PRP) schemes. Even the Government noticed this and, in fact, a government initiative set out in the March 1999 (White Paper "Modernising Government") encourages the use of performance related pay schemes for public sector employees. The key idea behind this is that linking pay to performance will provide an incentive for the employees to work harder. In many jobs, however, performance related pay might be inappropriate: for example, when the true performance of an employee is difficult to measure. The findings shown in Table 1-9 confirm the widely held belief that incentive pay systems are far less widespread in the public sector than the private sector. In a work of Heid (1997) it is noted that the difference between public and private services in the likelihood of their operating an objectively measured PRP scheme is for non-manual workers only; Heid shows that there is no significant difference for manual workers. In this paper, we show that for managerial occupations there is a relevant difference in the level of reward between public and private managers. Heid (1997) shows also that for merit pay and subjectively assessed bonus schemes, there are significantly fewer schemes in the public sector for all occupations. PRP is used when measuring output is easy and merit pay is used when it is difficult. The output of manual workers is likely to be easier to measure than that of non-manual workers in general. For managerial reward the level of bonuses is usually connected to the performance of

[8] B1 is related to non-executive directors, B2 to busy directors and B3 to old directors. It contains exactly the previously considered variables in equation 4

the firm. The index measuring performance in some cases is the profit realised the previous year or sometimes is the stock value of the shares in the stock market. That there is no difference in the likelihood of a PRP scheme for manual workers seems reasonable: they perform broadly the same sort of jobs in the public as well as in the private sector. If the difference for non-manual workers, such as managers and professionals, is because their output is more difficult to measure, then we should have observed more merit pay in the public sector to compensate. We actually observe less however, which suggests that there may simply be too few incentive schemes in the public sector. This evidence provides tentative support for the ongoing programme of giving more incentives to public services.

In section 1.10 a comparative analysis will be conducted between the results obtained with an aggregate estimation and the results obtained with a fragmented estimation in which we will differentiate again the results achieved by sector and nature of ownership.

1.10 A comment on the results about the excess of compensation.

Table 1-8, Table 1-9 and Table 1-10 present a summary of the results about the percentage PEC obtained with the previously examined formula $\frac{\sum_j \hat{\gamma}_j O_j + \sum_k \hat{\delta}_k B_k}{\text{Total Compensation}}$. In particular, in Table 1-8 there are all the results in aggregate. Here, the excess of compensation is calculated as a proportion of total reward. Note that for some years (i.e. 1978, 1979, …,1998) the observations in the sample are less than the number of firms in the sample (i.e. in 1978 we have just one observation relative to British Aerospace while we do not have data on the relevant variables for the other firms). This is due to lack of data for some firms in the mentioned years. For a complete reference about the time series relative to each of the firm see Table 1-1.

We can see that there is a time trend in the series of data since the excess of compensation assumes higher values in the recent years than in the earlier ones and there are several "jumps" in the series (see Figure 1-1 relative to Table 1-8). Another important point is that, if for instance we take all the observations of 1986 we have some values around 6% (on average) and other around 12% (on average). In general, the average excess of compensation is of 10.33% with a standard deviation of 4.65. The value of standard deviation is quite high if we consider the "magnitude" of the value. This can give a clue that something has to be refined since it seems that there are two different "accumulation points". This (and the previously mentioned "jumps") could be due to two factors: different sectors of the firms considered or a different structure of ownership. Therefore, to understand the relevance in excess of compensation it is better to disaggregate the data into two sub-samples (see Table 1-9 and Table 1-10).

Table 1-8 Excess of compensation. Percentage value of total reward: all the sample firms.

Year	Percentage value of excess on the total reward	Year	Percentage value of excess on the total reward	Year	Percentage value of excess on the total reward	Year	Percentage value of excess on the total reward	Year	Percentage value of excess on the total reward
1978	3.8376	1984	4.83635	1988	12.5957	1991	11.0978	1995	18.1424
1979	4.8329	1984	6.20779	1988	4.5954	1992	16.9117	1995	15.2859
1980	4.1128	1984	3.15961	1988	6.0526	1992	5.53524	1995	14.9348
1980	5.7819	1985	10.8841	1988	15.8439	1992	14.7650	1996	13.6822
1980	3.5704	1985	5.09973	1989	11.3272	1992	13.2769	1996	10.6914
1981	3.1371	1985	4.04955	1989	10.8110	1992	13.1220	1996	15.4157
1981	5.6636	1985	4.99798	1989	11.5139	1992	14.2307	1996	16.6216
1981	5.6943	1985	5.46336	1989	15.119	1992	13.4226	1996	17.2103
1981	4.2888	1985	3.80827	1989	6.3844	1993	15.0042	1996	16.3599
1982	3.6282	1986	13.3807	1989	13.8724	1993	13.5746	1997	17.4158
1982	3.6538	1986	3.82286	1990	13.4062	1993	12.4686	1997	12.2513
1982	4.5750	1986	12.2886	1990	13.2741	1993	14.7116	1997	10.3587
1982	4.4048	1986	4.37629	1990	12.5886	1993	13.5624	1997	14.6478
1982	5.1890	1986	7.29237	1990	13.5772	1993	14.5728	1997	18.4682
1983	3.2758	1986	13.3042	1990	6.5857	1994	14.7229	1997	14.2695
1983	2.9220	1987	13.8926	1990	11.4774	1994	11.6148	1998	13.7366
1983	5.2740	1987	5.40926	1990	13.2670	1994	14.9770	1998	16.5940
1983	7.0038	1987	11.9407	1991	14.1104	1994	14.5782	average value	10.3381
1983	7.9088	1987	4.03264	1991	11.6131	1994	13.7950	standard dev.	4.64946
1983	2.7083	1987	6.56022	1991	12.3692	1994	16.1160		
1984	10.419	1987	15.1226	1991	11.9761	1995	15.2813		
1984	3.5983	1988	11.9226	1991	5.0006	1995	11.5985		
1984	5.8228	1988	13.1548	1991	13.1503	1995	15.0039		

Note: in Table 1-8 there are the percentage values of excess of compensation taking the sample in aggregate. The values of the parameter used are derived from the estimation in Table 1-5. To separate the firms considered for the structure of ownership helps to understand the previously mentioned anomalies. Using the same parameters and splitting the previous sample into two sub-samples (public firms and private firms) allows refinement of the analysis (see Table 1-9). Now the average excess of compensation in the public sector is about 4.90% (lower than the previous 10%) with a standard deviation of 1.2 while the average excess of compensation in private firms is about 14% with a standard deviation of 1.9. Again, if we compare with the results of model one to be in the private sector gives an excess of compensation higher than achieved in the public sector. Recalling the results achieved in the previous bureaucratic model, we have to remember that the private sector has a facility to achieve higher managerial pay.

Figure 1-1 Excess of compensation. Percentage value of total reward: all the sample firms.

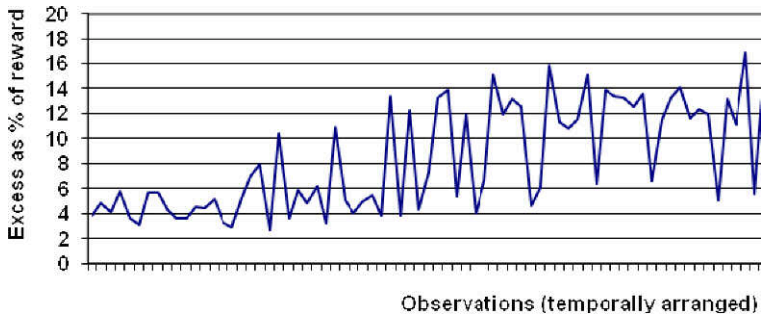


Figure 1-1 (based on Table 1-8) shows the trend of the excess of compensation in aggregate. We cannot easily observe a clear trend. Nevertheless, we can realise that, after few years, in some cases the excess of compensation is close to 10% and in other cases the excess is still around 5%. We need to recall that the sample is based on panel data so that, for instance, in a year we can have 4 observations relative to different firms, may be 2 in the public sector and 2 in the private sector. The fact that the trend shown in Figure 1-1 is "confuse" could be a signal of the presence of two or more different trends. Therefore, it is better to split the sample in two sub-sample, private and public firms. In Table 1-9 there is the excess of compensation as percentage value of total reward in public and private firms.

Table 1-9 Excess of compensation. Percentage value of total reward: public and private firms.

Percentage excess on total: public		Percentage excess on total: private			
3.8376	5.8228	10.4193	11.4774	11.6148	18.4682
4.8329	4.8363	10.8841	13.2670	14.9770	14.2695
4.1128	6.2077	13.3807	14.1104	14.5782	13.7366
5.7819	3.1596	12.2886	11.6131	13.7950	16.5940
3.5704	5.0997	13.3042	12.3692	16.1160	
3.1371	4.0495	13.8926	11.9761	15.2813	
5.6636	4.9978	11.9407	13.1508	11.5985	
5.6943	5.4633	15.1226	11.0978	15.0039	
4.2888	3.8082	11.9226	16.9117	18.1424	
3.6282	3.8228	13.1548	14.7650	15.2859	
3.6538	4.3762	12.5957	13.2769	14.9348	
4.5750	7.2923	15.8431	13.1220	13.6822	
4.4048	5.4092	11.3272	14.2307	10.6914	
5.1890	4.0326	10.8110	13.4226	15.4157	
3.2758	6.5602	11.5139	15.0042	16.6216	
2.9220	4.5956	15.1190	13.5746	17.2103	
5.2740	6.0526	13.8724	12.4686	16.3599	
7.0038	6.3844	13.4062	14.7116	17.4158	
7.9088	6.5857	13.2741	13.5624	12.2513	
2.7083	5.0002	12.5886	14.5728	10.3587	
3.5983	5.5352	13.5772	14.7229	14.6478	

Plotting the data obtained in Table 1-9 we obtain Figure 1-2 where we show the excess of compensation under public and private ownership. Now the results obtained are slightly clear than the one shown in Figure 1-1.

Some statistics to compare the different results of the two series have been performed:

Summary Statistics

	Public Sector	*Private Sector*
Count	*42*	*67*
Average	*4,86079*	*13,7716*
Standard deviation	*1,25799*	*1,91301*
Coeff. of variation	*25,8803%*	*13,891%*
Minimum	*2,7083*	*10,3587*
Maximum	*7,9088*	*18,4682*
Range	*5,2005*	*8,1095*
Stnd. skewness	*1,00195*	*1,04993*
Stnd. kurtosis	*-0,592907*	*-0,519772*

Comparison of Means

90,0% confidence interval for mean of Pub. Sector: 4,86079 +/- 0,326666 [4,53412; 5,18745] 90,0% confidence interval for mean of Priv. Sector: 13,7716 +/- 0,389894 [13,3817; 14,1615] 90,0% confidence interval for the difference between the means assuming equal variances: -8,91081 +/- 0,552613 [-9,46342; -8,3582]

t test to compare means: Null hypothesis: mean1 = mean2 Alt. hypothesis: mean1 NE mean2 Assuming equal variances: t = -26,7548 P-value = 0,0 Reject the null hypothesis for alpha = 0,1.
Since the interval does not contain the value 0, there is a statistically significant difference between the means of the two samples at the 90,0% confidence level. Since the computed P-value is less than 0,1, we can reject the null hypothesis in favour of the alternative.

Comparison of Standard Deviations

	Public Sector	*Private Sector*
Standard deviation	*1,25799*	*1,91301*
Variance	*1,58253*	*3,6596*
Df	*41*	*66*

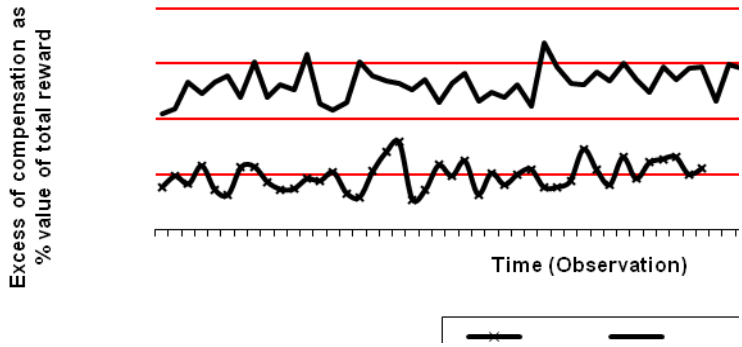
Ratio of Variances = 0,432431

90,0% Confidence Intervals
Standard deviation of public sector: [1,06746; 1,54093] ; Standard deviation of private sector: [1,67621; 2,2361] ; Ratio of Variances: [0,275069; 0,700146]

F-test to Compare Standard Deviations
Null hypothesis: sigma1 = sigma2 ; Alt. hypothesis: sigma1 NE sigma2
F = 0,432431 P-value = 0,00485742
Reject the null hypothesis for alpha = 0,1.
We run an F-test to compare the variances of the two samples. We also construct confidence intervals or bounds for each standard deviation and for the ratio of the variances. The confidence interval for the ratio of the variances extends from 0,275069 to 0,700146. Since the interval does not contain the value 1, there is a statistically significant difference between the standard deviations of the two samples at the 90% confidence level.
An F-test may also be used to test a specific hypothesis about the standard deviations of the populations from which the two samples come. In this case, the test has been constructed to determine whether the ratio of the standard deviations equals 1,0 versus the alternative hypothesis that the ratio does not equal 1,0. Since the computed P-value is less than 0,1, we can reject the null hypothesis in favour of the alternative.

This invalidates the previous t-test on the difference between the two means and suggests that further analysis is needed. An attempt to solve this could be to see if there are other sub-samples in the two mentioned groups. We will consider 4 different samples, public and private manufacturing and public and private services.

Figure 1-2 Excess of Compensation under public and private ownership



Therefore, the next step is to differentiate between service sector and manufacturing sector and combine the previous fragmentation in public firm and private firm with the sector differentiation. This splitting (presented in Table 1-10) will help us to link the results obtained in Model One (in which we were able to discuss managerial discretion in Public and Private manufacturing and services) with the results obtained with Model Two. This will provide a direct correlation between managerial discretion and excess of compensation in each of the different sectors.

Table 1-10 Excess of compensation: percentage value of total reward. Manufacturing and Service in Public and Private Context.

Percentage excess in manufacturing sector: public firms		Percentage excess in manufacturing sector: private firms		Percentage excess in service sector: public firms		Percentage excess in service sector: private firms	
-0.9719	-0.5021	4.3845	5.3524	7.0818	5.2605	15.2436	17.1787
0.9519	-1.2248	3.7192	8.0803	5.2009	4.4841	15.2920	16.6360
-0.4982	-0.9954	7.4601	7.3438	6.9745	6.0037	14.8120	15.4170
-0.8542	0.8140	9.0023	6.7654	6.7636	8.0612	16.8111	17.1205
-0.7945	-0.9682	7.1475	7.0029	5.5702	7.4984	15.6878	16.4981
0.2952	-2.8956	7.3341	5.6639	6.1060	6.9183	17.7631	17.8922
-0.9253	-2.6683	5.9575	7.3814	5.3869	7.8197	14.7855	17.1512
-0.8296	0.8634	7.2133	7.0448	6.6991	7.5276	15.7762	18.0988
-1.0160	-1.2797	4.4875	5.6560	8.5753	6.1248	15.3447	19.7939
-1.3949		8.3225	8.0430	3.3172	6.5134	14.5143	18.5645
		7.4006	5.2377	7.2054		15.6821	19.2166
		5.6385	4.4379	6.6505		15.0772	18.3750
		8.6552	9.5622	3.9384		14.0342	17.4219
		4.6867	4.9377			15.5447	19.4462
		3.8101	4.2998			15.2071	20.3851
		9.2518	8.1586			16.8554	19.0718
		7.4022	8.2514			16.3004	

Table 1-10 gives a more 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 for the manufacturing and for the service sector in a fragmented way (see Table 2-5 and Table 2-6 for details on the values of parameters used[9]).

Some statistics to compare the different results of each different sector have been performed:

Summary Statistics

[9] In the course of the work sometimes the estimations use the variable "profsales" and sometimes not. I have done all the estimations twice: once using the extra-variable "profsales" as a proxy for performance and once without using this variable since several times the t-prob. suggests that the parameter could be equal to zero. I have done a comparison of the results obtained with the two methods and the difference, in average is of the 0,24% in the excess of compensation with a standard deviation of 0.066. I leave for completeness all the two estimation (in text and in the Appendix) but probably, the very small difference suggests that it could be avoided.

	Count	*Average*	*Stan. Dev.*	*Coeff. of variation*	*Minimum*	*Maximum*	*Range*	*Stnd. skewness*	*Stnd. kurtosis*
Public Manufacturing	19	-0,783905	1,01719	-129,759%	-2,8956	0,9519	3,8475	-0,157412	0,501797
Private Manufacturing	34	6,62038	1,66365	25,1292%	3,7192	9,5622	5,843	-0,371744	-1,28837
Public Services	23	6,33398	1,3125	20,7216%	3,3172	8,5753	5,2581	-1,15959	0,0786632
Private Services	33	16,7575	1,68185	10,0364%	14,0342	20,3851	6,3509	1,07872	-0,857893
Total	109								

This table shows various statistics for each of the 4 columns of data. To test for significant differences amongst the column means, we performed an Analysis of Variance.

ANOVA Table

Source	*Sum of Squares*	*Df*	*Mean Square*	*F-Ratio*	*P-Value*
Between groups	4112,98	3	1370,99	603,90	0,0000
Within groups	238,374	105	2,27023		
Total (Corr.)	4351,35	108			

The ANOVA table decomposes the variance of the data into two components: a between-group component and a within-group component. The F-ratio, which in this case equals 603,901, is a ratio of the between-group estimate to the within-group estimate. Since the P-value of the F-test is less than 0,1, there is a statistically significant difference between the means of the 4 variables at the 90,0% confidence level. To determine which means are significantly different from which others, we did a Multiple Range test

Multiple Range Tests

Method: 90,0 percent LSD

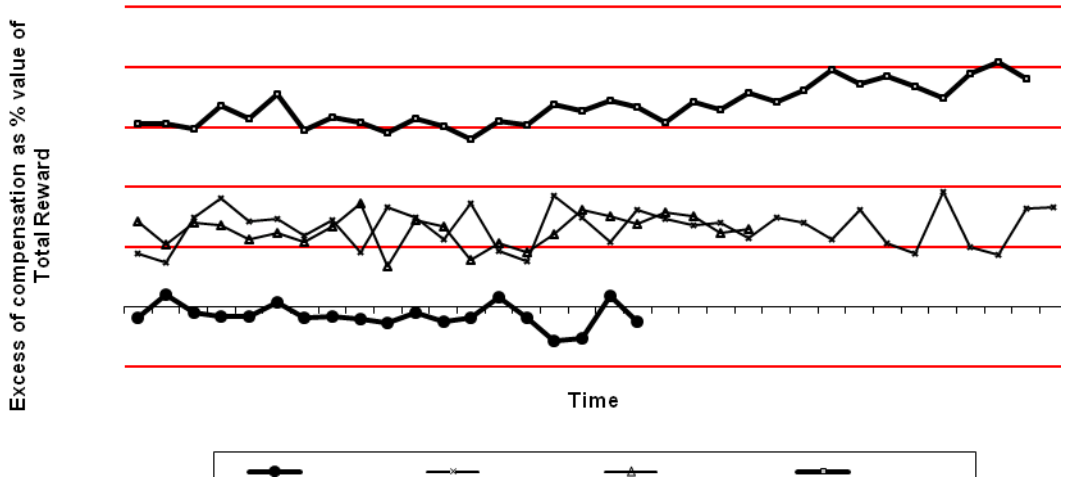
	Count	*Mean*	*Homogeneous Groups*	*Contrast*	*Sig.*	*Difference*	*+/- Limits*
Public Manufacturing	19	-0,783905	X	Public Manufacturing - Private Manufacturing	*	-7,40428	0,716199
Public Services	23	6,33398	X	Public Manufacturing - Public Services	*	-7,11788	0,775168
Private Manufacturing	34	6,62038	X	Public Manufacturing - Private Services	*	-17,5414	0,720078
Private Services	33	16,7575	X	Private Manufacturing - Public Services		0,286398	0,675065
				Private Manufacturing - Private Services	*	-10,1372	0,611016
				Public Services - Private Services	*	-10,4236	0,67918

* denotes a statistically significant difference.

This table applies a multiple comparison procedure to determine which means are significantly different from which others. The bottom half of the output shows the estimated difference between each pair of means. An asterisk has been placed next to 5 pairs, indicating that these pairs show statistically significant differences at the 90% confidence level. Three homogenous groups are identified using columns of X's. Within each column, the levels containing X's from a group of means within which there are no statistically significant differences. The method currently being used to discriminate among the means is Fisher's least significant difference (LSD) procedure. With this method, there is a 10% risk of calling each pair of means significantly different when the actual difference equals 0.

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 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%).

Figure 1-3 Excess of compensation in different sectors and under different ownership



The results of Figure 1-3 show that sector and ownership can have some effects on the excess of compensation. The comments to these results are given in the next section.

1.11 Conclusions

If we compare the value of service in public and private, we see that a change of ownership implies an increase of about 10% in the excess of compensation of the manager. This is perfectly consistent with the previous (Model One) result of higher managerial discretion in private firms and in service sector. In the manufacturing sector the increase is smaller but again it is positive (6%). We can summarise all the previous 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 (labour productivity and may be profitability). At the same time, the price that we will have to pay to our management will be a higher discretion and a higher excess of compensation. This is dependent of 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. These differences seem to be interpretable within the theoretical framework set out above. We know that pay based on objective performance criteria is less likely to be optimal in circumstances where measurement is difficult (services) or multitasking is important (public goals). It seems reasonable to believe that measurement is in general harder in services than manufacturing and that it is harder to measure for non-manuals (managers) than manuals (workers). This fits with idea that it is not ownership *per se* that matters, but that 'decision makers' in the public sector are treated differently. This is hard to interpret. It may be due to differences in the scope for measurement or multitasking. Nevertheless, much of what civil servants do at work is not that different in terms of measurability and structure to what managers and administrative staff do in private sector services. It may be related to the idea that decision-makers in the public sector have to work to multiple principals and hence there is a greater discretion. The existence of different principals, to which we have already referred above, and the possible competition between such principals may lead to a more complex and diffuse definition of agents' goals. Thus, public firms do not have a single goal and, more important, the objectives are not fixed over time. In relation to the multiplicity of objectives it can be said that the Parliament's aims (voters' representatives) are different from those of the government, and moreover, different ministers may pursue different objectives (increase in employment, reduction of the deficit, improvement in efficiency, etc.). Secondly, the objectives of public firms change over time. A change in government, for instance, may radically alter the guiding principles and targets initially laid down, and they may even contradict those set by the previous Government. This fact, which is undoubtedly known to the managers of public enterprises, prevents them from taking decisions with a medium- and long-term perspective, with the subsequent costs in terms of efficiency.

Thus, the incidence of PRP among public sector manual workers controls for ownership per se, and the incidence among private sector non-manuals controls for facets peculiar to those occupations. The fact that the (public service – private service) difference is far greater for private managers than public manager may be evidence of optimally set incentive schemes. Alternatively, it may be due to occupational differences *within* the professional and technical group between the two sectors. One obvious possibility is that the private sector needs behaviour from the private manager that is more closely connectable to PRP and that this works well "only" in the private sector. Management incentive schemes based on productivity are rarely found in state-owned enterprises. This is largely because of the multiple and diffuse goals referred to earlier. On the one hand, the achievement of some of the goals entrusted to public enterprises is difficult to evaluate because of the difficulty of finding indicators to measure performance. On the other, the multiplicity of objectives require that weights be established for each of them in case there should be some incompatibility among them. The fact that the public service – private service difference is far greater for private managers than public manager may be evidence of optimally set incentive schemes. It may also be due to simple inefficiency among managers in the public sector.

2 Appendix

2.1 Data trends

In this section there is a graphical data description and a normality test for the variables used. Logcomp is intended as a variable that is the natural logarithm of COMP. The set performance includes the data description of the following variables: Sales, Profit, Log of Sales and Profit on Sales ratio. The set Board includes the data description of the following variables: Executive, Non-Executive, Busy and Old. The variable Ownership has not been examined since is a dummy variable with value one if the firm considered is private and zero if it is public. In the first part of this Appendix there is the graphical analysis of the variables used in the estimation, some statistics for normality test of data and the Correlation matrix between variables. The graphical data description is the resumed in Figure 2-1, Figure 2-2 and Figure 2-3.

Figure 2-1 Graphical analysis of variable "compensation"

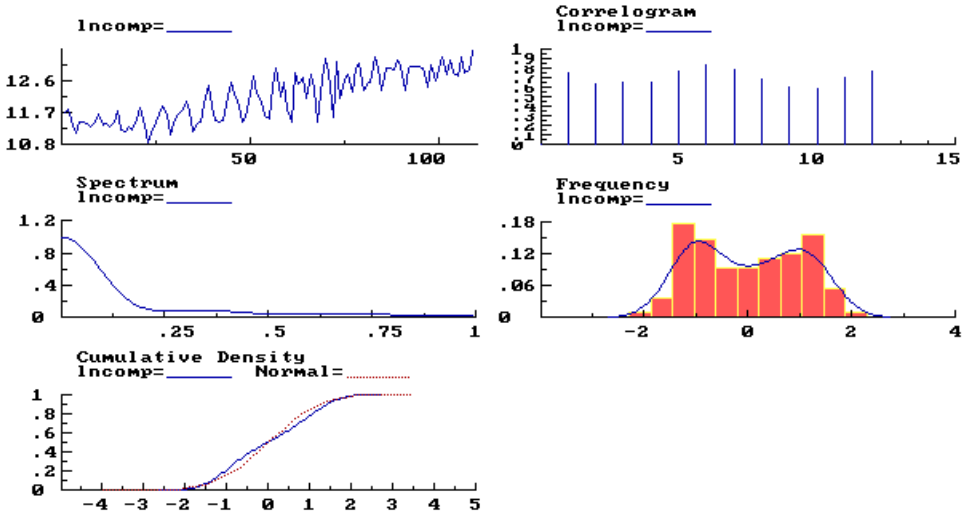


Figure 2-2 Graphic analysis of variables related to performance.

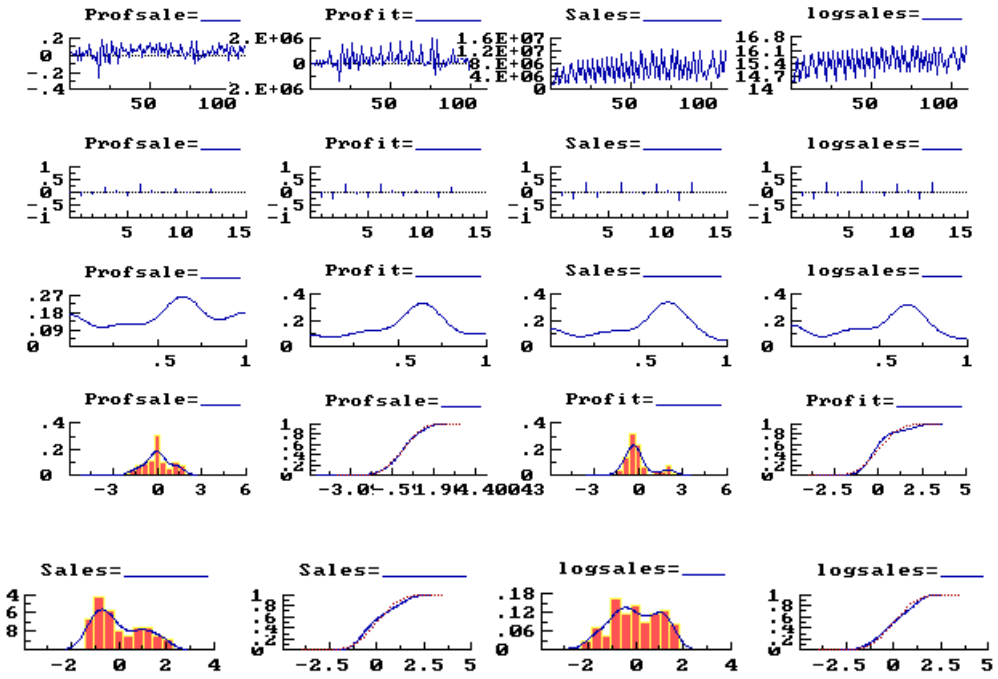
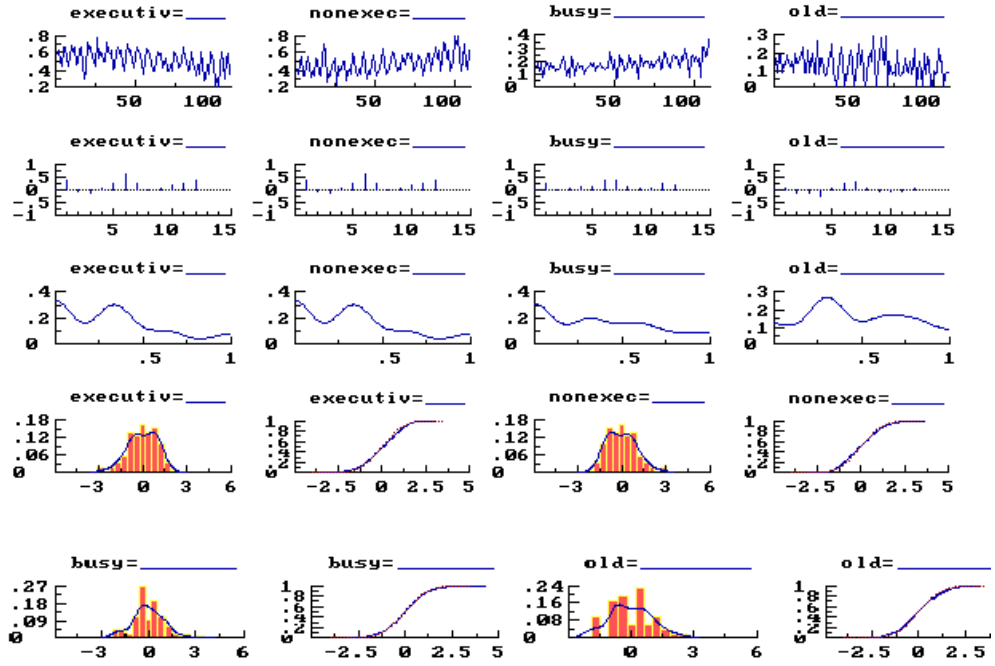


Figure 2-3 Graphic analysis of variables related to "Board".



The entire statistical test for the variables are in Table 2-1, Table 2-2 and Table 2-3.

Table 2-1 Some statistics for normality test.

	Variable				
	logCOMP	**Executive**	**Non-executive**	**Old**	**Logsales**
Sample Size	99	99	99	99	99
Mean	12.1480	0.5186	0.4813	0.1268	15.4870
Std.Devn.	0.6806	0.1158	0.1158	0.0704	0.5357
Skewness	0.0735	-0.3851	0.3853	0.1440	-0.1199
Excess Kurtosis	-1.3701	-0.2724	-0.2724	-0.2892	-1.0432
Minimum	10.8661	0.2000	0.2307	0.0000	14.4248
Maximum	13.4545	0.7692	0.8000	0.3000	16.3358
Normality Chi^2	17.576 [0.0002]	4.1366 [0.1264]	4.1366 [0.1264]	0.54224[0.7625]	7.9263 [0.0190]
	Variable				
	Busy	**Profsales**	**Profit**	**Sales**	
Sample Size	99	99	99	99	
Mean	0.1820	0.0344	314,854.7388	6,102,672.4765	
Std.Devn.	0.0532	0.0693	590,470.5561	3,106,618.5925	
Skewness	0.2945	-0.6914	0.9698	0.5230	
Excess Kurtosis	0.7187	2.1547	0.9361	-1.0015	
Minimum	0.0666	-0.2689	-1,277,941.1764	1,839,262.4728	
Maximum	0.3636	0.1639	1,965,973.5349	124,32,892.245	
Normality Chi^2	4.3367 [0.1144]	13.703[0.001]	21.1 [0.0000]	27.638 [0.0000]	

Following there are some other descriptive statistics

Table 2-2 Means and standard deviation.

	Variable				
	Lncomp	**Executive**	**Nonexec**	**Busy**	**Old**
Standard deviation	0.6838	0.1164	0.1164	0.05354	0.07078
Mean	12.15	0.5187	0.4813	0.1820	0.1268
	Variable				
	Profsales	**Profit**	**Sales**	**Logsales**	
Standard deviation	0.06962	5.932e+005	3.121e+006	0.5382	
Mean	0.03448	3.149e+005	6.103e+006	15.49	

Table 2-3 Correlation matrix between variables.

	Lncomp	**Executive**	**Nonexec**	**Busy**	**Old**	**Profsales**	**Profit**	**Sales**	**Logsales**
Lncomp	1.000								
Executive	-0.3192	1.000							
Nonexec	0.3192	-1.000	1.000						
Busy	0.4105	-0.4594	0.4594	1.000					
Old	-0.3340	-0.1764	0.1764	0.05483	1.000				
Profsales	0.2273	0.06860	-0.06860	0.06307	-0.2248	1.000			
Profit	0.2343	0.03237	-0.03237	0.1092	-0.3102	0.8981	1.000		
Sales	0.3722	-0.1566	0.1566	0.3532	-0.3443	0.4852	0.6835	1,000	
Logsales	0.3758	-0.2347	0.2347	0.3923	-0.2660	0.4328	0.5975	0.9719	1,000

2.2 Other sets of estimations

As stated in the main text (see section 1.9) different attempts at estimation of the model have been done. In the main text I considered the estimation and the results deriving from the inclusion of the variable Profsales. I did the same estimation without considering this variable. The results are very similar but, to be precise, here I provide the set of Tables showing the results without the Profsales variable.

Table 2-4 Estimating Comp (without variable profit).

Variable	Coefficient	Standard Error	t-value	t-prob
Constant	12.453	1.0748	11.586	0.0000
Nonexec	1.4218	0.32094	4.430	0.0000
Busy	1.3162	0.74338	1.771	0.0796
Old	-2.3613	0.49966	-4.726	0.0000
Logsales	-0.10057	0.071900	-1.399	0.1649
Ownership	1.0225	0.075013	13.631	0.0000
Trend	0,21146	0,036599	5,777	0.0000
R^2= 0.768518		DW = 2.11		
F(5, 103) = 68.392 [0.0000]		RSS = 11.69103327 for 6 variables and 109 observations		

Table 2-5 Manufacturing sector: Estimating Compensation without proxy of profit.

Variable	Coefficient	Standard Error	t-value	t-prob
Constant	9.7988	1.9189	5.106	0.0000
Nonexec	0.90221	0.69421	1.300	0.2001
Busy	0.97134	1.1042	0.880	0.3835
Old	-2.5863	0.75432	-3.429	0.0013
Logsales	0.10497	0.13633	0.770	0.4451
Ownership	0.82131	0.10417	7.885	0.0000
Trend	0,1957	0,03362	5,820	0.0000
R^2 = 0.76273		DW = 1.39		
F(5, 47) = 30.217 [0.0000]		RSS = 4.443533069 for 6 variables and 53 observations		

Table 2-6 Service sector: Estimating Compensation without proxy of profit.

Variable	Coefficient	Standard Error	t-value	t-prob
Constant	12.208	2.7817	4.389	0.0001
Nonexec	1.6281	0.48094	3.385	0.0014
Busy	1.0956	1.1073	0.989	0.3272
Old	-1.8082	0.76283	-2.370	0.0217
Logsales	-0.098783	0.17042	-0.580	0.5648
Ownership	1.1378	0.13949	8.157	0.0000
Trend	0,263906	0,069467	3,799	0.0000
R^2 = 0.79578		DW = 1.63		
F(5, 50) = 38.967 [0.0000]		RSS = 6.489582866 for 6 variables and 56 observations		

Table 2-7 Excess of compensation: aggregate value.

DMU	Excess of compensation PEC (1)	Lncomp (2)	Lncomp minus excess	DMU	Excess of compensation PEC (1)	Lncomp (2)	Lncomp minus excess	DMU	Excess of compensation PEC (1)	Lncomp (2)	Lncomp minus excess
1	0.4495	11.7138	11.2643	38	1.8421	12.5214	10.6793	74	0.5716	11.4372	10.8657
2	0.5692	11.7764	11.2073	39	1.7010	12.5422	10.8412	75	0.6360	11.6415	11.0055
3	0.4662	11.3342	10.8681	40	1.9347	13.2761	11.3414	76	0.4472	11.7426	11.2955
4	0.6431	11.1223	10.4792	41	1.9036	12.9296	11.0261	77	1.6099	12.0314	10.4216
5	0.4079	11.4249	11.0170	42	1.4306	12.3165	10.8860	78	0.4495	11.7590	11.3095
6	0.3596	11.4633	11.1037	43	1.9404	12.9555	11.0152	79	1.3728	11.1712	9.7985
7	0.6460	11.4066	10.7606	44	1.8898	12.9628	11.0731	80	0.4994	11.4124	10.9130
8	0.6431	11.2934	10.6503	45	1.7778	12.8871	11.1093	81	0.8356	11.4579	10.6224
9	0.4900	11.4242	10.9343	46	2.1197	13.1528	11.0331	82	1.5900	11.9514	10.3614
10	0.4225	11.6449	11.2225	47	1.9844	12.9854	11.0011	83	1.7316	12.4642	10.7326
11	0.4150	11.3567	10.9417	48	1.4306	12.3339	10.9034	84	0.6438	11.9022	11.2584
12	0.5217	11.4037	10.8820	49	1.9404	12.9323	10.9920	85	1.3728	11.4968	10.1240
13	0.4972	11.2882	10.7910	50	2.3548	12.9796	10.6248	86	0.4610	11.4322	10.9712
14	0.5946	11.4593	10.8648	51	1.9847	12.9835	10.9989	87	0.7531	11.4794	10.7264
15	0.3853	11.7623	11.3770	52	1.9404	12.9922	11.0519	88	1.8386	12.1582	10.3196
16	0.3274	11.2054	10.8780	53	1.7724	12.9539	11.1816	89	1.4972	12.5575	11.0603
17	0.5883	11.1541	10.5659	54	1.3255	12.3977	11.0722	90	1.6099	12.2380	10.6281
18	0.7915	11.3007	10.5093	55	2.0070	13.0191	11.0122	91	1.4970	11.8845	10.3876
19	0.8880	11.2282	10.3402	56	2.0896	12.5717	10.4821	92	0.5256	11.4382	10.9126
20	0.3118	11.5126	11.2008	57	2.2278	12.9442	10.7165	93	0.6993	11.5533	10.8541
21	1.2344	11.8470	10.6126	58	2.1658	13.2383	11.0726	94	1.9362	12.2210	10.2848
22	0.4079	11.3361	10.9283	59	2.2278	12.7914	10.5637	95	1.4396	12.7093	11.2697
23	0.6327	10.8661	10.2335	60	1.6150	13.1820	11.5670	96	1.3255	12.2605	10.9351
24	0.5394	11.1538	10.6144	61	1.3255	12.7959	11.4704	97	1.3847	12.0259	10.6413
25	0.7114	11.4597	10.7484	62	1.8661	12.7395	10.8735	98	1.7593	11.6364	9.8771
26	0.3689	11.6750	11.3061	63	2.4502	13.2670	10.8168	99	0.7350	11.5117	10.7768
27	1.2940	11.8892	10.5952	64	1.8277	12.8081	10.9805	100	1.7260	12.4420	10.7160
28	0.5943	11.6535	11.0593	65	1.7732	12.9087	11.1355	101	1.7340	12.9341	11.2001
29	0.4495	11.1008	10.6513	66	2.2327	13.4546	11.2219	102	1.6099	12.12811	10.5182
30	0.6404	11.5689	10.9286	67	1.4080	12.1243	10.7164	103	1.5789	12.5425	10.9636
31	1.9347	13.1032	11.1686	68	1.5789	12.7651	11.1862	104	1.6039	11.8130	10.2092
32	1.6099	12.1255	10.5156	69	1.4794	12.3526	10.8733	105	0.7531	11.4349	10.6819
33	1.6594	12.6460	10.9866	70	0.5716	11.4312	10.8596	106	1.4684	12.7938	11.3254
34	1.8171	12.7686	10.9516	71	1.6616	12.6352	10.9736	107	1.6616	12.5245	10.8629
35	1.6459	12.2620	10.6162	72	1.4684	13.2315	11.7631	108	1.7892	12.6803	10.8911
36	1.9404	12.9321	10.9918	73	2.1679	12.8186	10.6508	109	1.5373	12.3295	10.7922
37	1.7768	13.0888	11.3121								

Notes: 1) $\mathrm{PEC} = \sum_{j} \hat{\gamma}_j O_j + \sum_{k} \hat{\delta}_k B_k$ Values in log ; 2)Values in log ;

Table 2-8 Excess CEO compensation including the variable "PROFSALES".

DMU	Non-executive ratios	Non-executive ratios X coefficient (1.4652)	Busy	Busy X coefficient (1.3657)	Old	Old X coefficient (-2.3315)	Ownership	Ownership X coefficient (1.0156)
1	0.4166	0.6105	0.1666	0.2276	0.1666	-0.3885	0.0000	0.0000
2	0.3636	0.5328	0.1818	0.2483	0.0909	-0.2119	0.0000	0.0000
3	0.5000	0.7326	0.1250	0.1707	0.1875	-0.4371	0.0000	0.0000
4	0.5625	0.8242	0.1875	0.2560	0.1875	-0.4371	0.0000	0.0000
5	0.3333	0.4884	0.0833	0.1138	0.0833	-0.1942	0.0000	0.0000
6	0.3333	0.4884	0.1333	0.1820	0.1333	-0.3108	0.0000	0.0000
7	0.4666	0.6838	0.2000	0.2731	0.1333	-0.3108	0.0000	0.0000
8	0.5625	0.8242	0.1875	0.2560	0.1875	-0.4371	0.0000	0.0000
9	0.42857	0.6279	0.1428	0.1951	0.1428	-0.3330	0.0000	0.0000
10	0.3125	0.4579	0.1875	0.2560	0.1250	-0.2914	0.0000	0.0000
11	0.3846	0.5635	0.1538	0.2101	0.1538	-0.3586	0.0000	0.0000
12	0.3333	0.4884	0.1666	0.2276	0.0833	-0.1942	0.0000	0.0000
13	0.5333	0.7814	0.1333	0.1820	0.2000	-0.4663	0.0000	0.0000
14	0.5000	0.7326	0.1428	0.1951	0.1428	-0.3330	0.0000	0.0000
15	0.3571	0.5233	0.1428	0.1951	0.1428	-0.3330	0.0000	0.0000
16	0.3333	0.4884	0.1666	0.2276	0.1666	-0.3885	0.0000	0.0000
17	0.5333	0.7814	0.2000	0.2731	0.2000	-0.4663	0.0000	0.0000
18	0.6923	1.0144	0.2307	0.3151	0.2307	-0.5380	0.0000	0.0000
19	0.5833	0.8547	0.1666	0.2276	0.0833	-0.1942	0.0000	0.0000
20	0.2727	0.3996	0.0909	0.1241	0.0909	-0.2119	0.0000	0.0000
21	0.3571	0.5233	0.1428	0.1951	0.2142	-0.4996	1.000	1.0156
22	0.3333	0.4884	0.0833	0.1138	0.0833	-0.1942	0.0000	0.0000
23	0.4615	0.6762	0.2307	0.3151	0.1538	-0.3586	0.0000	0.0000
24	0.5000	0.7326	0.2000	0.2731	0.2000	-0.4663	0.0000	0.0000
25	0.5454	0.7992	0.0909	0.1241	0.0909	-0.2119	0.0000	0.0000
26	0.2307	0.3381	0.1538	0.2101	0.0769	-0.1793	0.0000	0.0000
27	0.4545	0.6660	0.1818	0.2483	0.2727	-0.6358	1.0000	1.0156
28	0.3846	0.5635	0.1538	0.2101	0.0769	-0.1793	0.0000	0.0000
29	0.4166	0.6105	0.1666	0.2276	0.1666	-0.3885	0.0000	0.0000
30	0.5000	0.7326	0.1666	0.2276	0.1666	-0.3885	0.0000	0.0000
31	0.5000	0.7326	0.1000	0.1365	0.1000	-0.2331	0.0000	0.0000
32	0.2857	0.4186	0.1428	0.1951	0.0714	-0.1665	0.0000	0.0000
33	0.3846	0.5635	0.1538	0.2101	0.0769	-0.1793	1.0000	1.0156
34	0.4166	0.6105	0.1666	0.2276	0.1666	-0.3885	0.0000	0.0000
35	0.3636	0.5328	0.1818	0.2483	0.1818	-0.4239	1.0000	1.0156
36	0.5833	0.8547	0.1666	0.2276	0.2500	-0.5828	0.0000	0.0000
37	0.5454	0.7992	0.1818	0.2483	0.0909	-0.2119	0.0000	0.0000
38	0.3750	0.5495	0.1250	0.1707	0.0625	-0.1457	1.0000	1.0156
39	0.3333	0.4884	0.1666	0.2276	0.0000	0.0000	1.0000	1.0156
40	0.4166	0.6105	0.1666	0.2276	0.0833	-0.1942	0.0000	0.0000
41	0.3636	0.5328	0.1818	0.2483	0.1818	-0.4239	1.0000	1.0156
42	0.5384	0.7890	0.1538	0.2101	0.2307	-0.5380	0.0000	0.0000
43	0.6153	0.9017	0.1538	0.2101	0.1538	-0.3586	0.0000	0.0000
44	0.4285	0.6279	0.1428	0.1951	0.0000	0.0000	1.0000	1.0156
45	0.3076	0.4508	0.1538	0.2101	0.0769	-0.1793	1.0000	1.0156
46	0.3846	0.5635	0.1538	0.2101	0.0769	-0.1793	1.0000	1.0156
47	0.3636	0.5328	0.2727	0.3724	0.1818	-0.4239	1.0000	1.0156
48	0.5000	0.7326	0.2142	0.2926	0.2142	-0.4996	0.0000	0.0000
49	0.5714	0.8373	0.1428	0.1951	0.1428	-0.3330	0.0000	0.0000
50	0.4285	0.6279	0.2142	0.2926	0.0000	0.0000	1.0000	1.0156
51	0.3333	0.4884	0.0666	0.0910	0.0666	-0.1554	1.0000	1.0156
52	0.3846	0.5635	0.0769	0.1050	0.1538	-0.3586	1.0000	1.0156

Table 2-8 Excess CEO compensation including the variable "profsales". (continued).

DMU	Non-executive ratios	Non-executive ratios X coefficient (1.4652)	Busy	Busy X coefficient (1.3657)	Old	Old X coefficient (-2.3315)	Ownership	Ownership X coefficient (1.0156)
53	0,4166	0,6105	0,2500	0,3414	0,2500	-0,5828	1.0000	1,0156
54	0,5333	0,7814	0,2000	0,2731	0,1333	-0,3108	1.0000	1,0156
55	0,6428	0,9419	0,2142	0,2926	0,2142	-0,4996	0.0000	0.0000
56	0,4666	0,6838	0,1333	0,18203	0,0666	-0,1554	1.0000	1,0156
57	0,3571	0,5233	0,1428	0,1951	0.0000	0.0000	1.0000	1,0156
58	0,3846	0,5635	0,1538	0,2101	0,0769	-0,1793	1.0000	1,0156
59	0,4166	0,6105	0,2500	0,3414	0,1666	-0,3885	1.0000	1,0156
60	0,5333	0,7814	0,2000	0,2731	0,2000	-0,4663	1.0000	1,0156
61	0,6153	0,9017	0,1538	0,2101	0,1538	-0,3586	0.0000	0.0000
62	0,6000	0,8791	0,2000	0,2731	0,3000	-0,6994	1.0000	1,0156
63	0,4666	0,6838	0,2000	0,2731	0,1333	-0,3108	1.0000	1,0156
64	0,3846	0,5635	0,1538	0,2101	0.0000	0.0000	1.0000	1,0156
65	0,4285	0,6279	0,0714	0,0975	0,1428	-0,3330	1.0000	1,0156
66	0,4166	0,6105	0,2500	0,3414	0,1666	-0,3885	1.0000	1,0156
67	0,5714	0,8373	0,2142	0,2926	0,2857	-0,6661	1.0000	1,0156
68	0,5000	0,7326	0,1666	0,2276	0,1666	-0,3885	0.0000	0.0000
69	0,4666	0,6838	0,2000	0,2731	0,1333	-0,3108	1.0000	1,0156
70	0,6000	0,8791	0,2000	0,2731	0,3000	-0,6994	1.0000	1,0156
71	0,6000	0,8791	0,2000	0,2731	0.0000	0.0000	1.0000	1,0156
72	0,5384	0,7890	0,1538	0,2101	0,1538	-0,3586	0.0000	0.0000
73	0,6000	0,8791	0,2000	0,2731	0,1000	-0,2331	1.0000	1,0156
74	0,3846	0,5635	0,1538	0,2101	0,0769	-0,1793	1.0000	1,0156
75	0,4166	0,6105	0,1666	0,2276	0,0833	-0,1942	1.0000	1,0156
76	0,4666	0,6838	0,2000	0,2731	0,0666	-0,1554	1.0000	1,0156
77	0,5714	0,8373	0,2142	0,2926	0,2142	-0,4996	1.0000	1,0156
78	0,5384	0,7890	0,2307	0,3151	0,0769	-0,1793	1.0000	1,0156
79	0,5000	0,7326	0,1428	0,1951	0,0714	-0,1665	1.0000	1,0156
80	0,3333	0,4884	0,1666	0,2276	0,0833	-0,1942	1.0000	1,0156
81	0,4545	0,6660	0,2727	0,3724	0,0909	-0,2119	1.0000	1,0156
82	0,5000	0,7326	0,2500	0,3414	0,1666	-0,3885	1.0000	1,0156
83	0,6000	0,8791	0,2000	0,2731	0,1000	-0,2331	1.0000	1,0156
84	0,5833	0,8547	0,1666	0,2276	0,0833	-0,1942	1.0000	1,0156
85	0,3846	0,5635	0,1538	0,2101	0,1538	-0,3586	1.0000	1,0156
86	0,5384	0,7890	0,2307	0,3151	0,0769	-0,1793	1.0000	1,0156
87	0,5625	0,8242	0,2500	0,3414	0,1250	-0,2914	1.0000	1,0156
88	0,6666	0,9768	0,2222	0,3034	0,2222	-0,5181	1.0000	1,0156
89	0,5384	0,7890	0,2307	0,3151	0.0000	0.0000	1.0000	1,0156
90	0,6363	0,9324	0,1818	0,2483	0,0909	-0,2119	1.0000	1,0156
91	0,3846	0,5635	0,1538	0,2101	0,1538	-0,3586	1.0000	1,0156
92	0,5384	0,7890	0,2307	0,3151	0,0769	-0,1793	1.0000	1,0156
93	0,7142	1,0466	0,2142	0,2926	0.0000	0.0000	1.0000	1,0156
94	0,7000	1,0256	0,3000	0,4097	0,2000	-0,4663	1.0000	1,0156
95	0,5384	0,7890	0,2307	0,3151	0,0769	-0,1793	1.0000	1,0156
96	0,6363	0,9324	0,1818	0,2483	0,1818	-0,4239	1.0000	1,0156
97	0,3846	0,5635	0,0769	0,1050	0,1538	-0,3586	1.0000	1,0156
98	0,4615	0,6762	0,2307	0,3151	0.0000	0.0000	1.0000	1,0156
99	0,5000	0,7326	0,2500	0,3414	0.0000	0.0000	1.0000	1,0156
100	0,8000	1,1722	0,2000	0,2731	0,1000	-0,2331	1.0000	1,0156
101	0,6923	1,0144	0,2307	0,3151	0,0769	-0,1793	1.0000	1,0156
102	0,8000	1,1722	0,2000	0,2731	0,1000	-0,2331	1.0000	1,0156
103	0,5555	0,8140	0,2222	0,3034	0,2222	-0,5181	1.0000	1,0156
104	0,3846	0,5635	0,0769	0,1050	0,1538	-0,3586	1.0000	1,0156
105	0,5384	0,7890	0,3076	0,4202	0,1538	-0,3586	1.0000	1,0156
106	0,6923	1,0144	0,3076	0,4202	0.0000	0.0000	1.0000	1,0156
107	0,4615	0,6762	0,2307	0,3151	0,0769	-0,1793	1.0000	1,0156
108	0,4166	0,6105	0,2500	0,3414	0,0833	-0,1942	1.0000	1,0156
109	0,6363	0,9324	0,3636	0,4966	0,0909	-0,2119	1.0000	1,0156

Table 2-9 Excess CEO compensation including the variable "PROFSALES": manufacturing sector.

DMU	Non-executive ratios	Non executive ratios X Coefficient (0.9488)	Busy	Busy X Coefficient (0.9162)	Old	Old X Coefficient (-2.5994)	Ownership	Ownership X Coefficient (0.8027)
1	0,4166	0,3953	0,1666	0,1527	0,1666	-0,4332	0.0000	0.0000
2	0,3636	0,3450	0,1818	0,1665	0,0909	-0,2363	0.0000	0.0000
3	0,3333	0,3162	0,0833	0,0763	0,0833	-0,2166	0.0000	0.0000
4	0,4285	0,4066	0,1428	0,1308	0,1428	-0,3713	0.0000	0.0000
5	0,3333	0,3162	0,1333	0,1221	0,1333	-0,3465	0.0000	0.0000
6	0,3125	0,2965	0,1875	0,1718	0,1250	-0,3249	0.0000	0.0000
7	0,3846	0,3649	0,1538	0,1409	0,1538	-0,3999	0.0000	0.0000
8	0,3571	0,3388	0,1428	0,1308	0,1428	-0,3713	0.0000	0.0000
9	0,3333	0,3162	0,1666	0,1527	0,1666	-0,4332	0.0000	0.0000
10	0,6923	0,6568	0,2307	0,2114	0,2307	-0,5998	0.0000	0.0000
11	0,3571	0,3388	0,1428	0,1308	0,2142	-0,5570	1.0000	0,8027
12	0,3333	0,3162	0,0833	0,0763	0,0833	-0,2166	0.0000	0.0000
13	0,5000	0,4744	0,2000	0,1832	0,2000	-0,5198	0.0000	0.0000
14	0,5000	0,4744	0,1666	0,1527	0,1666	-0,4332	0.0000	0.0000
15	0,3846	0,3649	0,1538	0,1409	0,0769	-0,1999	0.0000	0.0000
16	0,4545	0,4312	0,1818	0,1665	0,2727	-0,7089	1.0000	0,8027
17	0,4166	0,3953	0,1666	0,1527	0,1666	-0,4332	0.0000	0.0000
18	0,5833	0,5534	0,1666	0,1527	0,2500	-0,6498	0.0000	0.0000
19	0,3846	0,3649	0,1538	0,1409	0,0769	-0,1999	1.0000	0,8027
20	0,3333	0,3162	0,1666	0,1527	0.0000	0.0000	1.0000	0,8027
21	0,5384	0,5108	0,1538	0,1409	0,2307	-0,5998	0.0000	0.0000
22	0,4166	0,3953	0,1666	0,1527	0,0833	-0,2166	0.0000	0.0000
23	0,3076	0,2919	0,1538	0,1409	0,0769	-0,1999	1.0000	0,8027
24	0,3846	0,3649	0,1538	0,1409	0,0769	-0,1999	1.0000	0,8027
25	0,5000	0,4744	0,2142	0,1963	0,2142	-0,5570	0.0000	0.0000
26	0,3333	0,3162	0,0666	0,0610	0,0666	-0,1732	1.0000	0,8027
27	0,5333	0,5060	0,2000	0,1832	0,1333	-0,3465	1.0000	0,8027
28	0,3846	0,3649	0,0769	0,0704	0,1538	-0,3999	1.0000	0,8027
29	0,3571	0,3388	0,1428	0,1308	0.0000	0.0000	1.0000	0,8027
30	0,3846	0,3649	0,1538	0,1409	0,0769	-0,1999	1.0000	0,8027
31	0,5333	0,5060	0,2000	0,1832	0,2000	-0,5198	1.0000	0,8027
32	0,3846	0,3649	0,1538	0,1409	0.0000	0.0000	1.0000	0,8027
33	0,4285	0,4066	0,0714	0,0654	0,1428	-0,3713	1.0000	0,8027
34	0,5714	0,5421	0,2142	0,1963	0,2857	-0,7426	1.0000	0,8027
35	0,6000	0,5692	0,2000	0,1832	0.0000	0.0000	1.0000	0,8027
36	0,3846	0,3649	0,1538	0,1409	0,0769	-0,1999	1.0000	0,8027
37	0,5714	0,5421	0,2142	0,1963	0,2142	-0,5570	1.0000	0,8027
38	0,5384	0,5108	0,2307	0,2114	0,0769	-0,1999	1.0000	0,8027
39	0,3333	0,3162	0,1666	0,1527	0,0833	-0,2166	1.0000	0,8027
40	0,5000	0,4744	0,2500	0,2290	0,1666	-0,4332	1.0000	0,8027
41	0,5833	0,5534	0,1666	0,1527	0,0833	-0,2166	1.0000	0,8027
42	0,3846	0,3649	0,1538	0,1409	0,1538	-0,3999	1.0000	0,8027
43	0,5625	0,5337	0,2500	0,2290	0,1250	-0,3249	1.0000	0,8027
44	0,6363	0,6037	0,1818	0,1665	0,0909	-0,2363	1.0000	0,8027
45	0,3846	0,3649	0,1538	0,1409	0,1538	-0,3999	1.0000	0,8027
46	0,5384	0,5108	0,2307	0,2114	0,0769	-0,1999	1.0000	0,8027
47	0,6363	0,6037	0,1818	0,1665	0,1818	-0,4726	1.0000	0,8027
48	0,3846	0,3649	0,0769	0,0704	0,1538	-0,3999	1.0000	0,8027
49	0,4615	0,4379	0,2307	0,2114	0.0000	0.0000	1.0000	0,8027
50	0,5555	0,5271	0,2222	0,2036	0,2222	-0,5776	1.0000	0,8027
51	0,3846	0,3649	0,0769	0,0704	0,1538	-0,3999	1.0000	0,8027
52	0,4615	0,4379	0,2307	0,2114	0,0769	-0,1999	1.0000	0,8027
53	0,4166	0,3953	0,25	0,2290	0,0833	-0,2166	1.0000	0,8027

Table 2-10 Excess of compensation: aggregate value in the manufacturing sector.

DMU	Excess of compensation	lncomp	lncomp minus excess	DMU	Excess of compensation	lncomp	lncomp minus excess	DMU	Excess of compensation	lncomp	lncomp minus excess
1	-0,1138	11,7138	11,8276	19	-0,0569	11,3361	11,3931	37	0,8975	12,5575	11,6599
2	0,11217	11,7764	11,6643	20	-0,1366	11,1538	11,2904	38	0,8975	12,2380	11,3404
3	-0,0563	11,4249	11,4818	21	-0,1138	11,4372	11,5511	39	-0,1468	11,4382	11,5846
4	-0,0979	11,4242	11,5218	22	0,0948	11,6535	11,5586	40	0,7579	12,7093	11,9521
5	-0,0918	11,4633	11,5543	23	0,4421	11,8892	11,4470	41	0,8391	11,6364	10,7970
6	0,03479	11,6449	11,6106	24	-0,1130	11,7590	11,8729	42	0,5509	12,2605	11,7103
7	-0,1009	11,3567	11,4617	25	-0,3300	11,4124	11,7429	43	1,0764	12,9341	11,8576
8	-0,0959	11,7623	11,8599	26	0,8975	12,0314	11,1339	44	0,8975	12,1281	11,2305
9	-0,1185	11,2054	11,3192	27	1,1220	12,4642	11,3421	45	0,6660	11,8130	11,1469
10	-0,1564	11,3007	11,4583	28	-0,3050	11,4322	11,7373	46	1,0975	12,6803	11,5828
11	0,5194	11,847	11,3275	29	0,1027	11,9022	11,7995	47	0,5682	12,1243	11,5561
12	0,5501	12,7959	12,2457	30	0,9148	12,9854	12,0706	48	0,4706	12,3526	11,8819
13	1,0449	12,8081	11,7631	31	0,6976	12,3339	11,6363	49	1,1859	12,8186	11,6326
14	1,0651	12,9087	11,8435	32	1,0449	12,9922	11,9472	50	0,8975	12,1255	11,2279
15	0,9054	12,9296	12,0242	33	0,6784	12,9539	12,2754	51	0,6563	12,2620	11,6057
16	0,6976	12,3165	11,6189	34	0,5501	12,3977	11,8475	52	1,0449	12,9321	11,8872
17	0,9568	12,9628	12,006	35	1,2449	13,0191	11,7742	53	0,9054	12,3295	11,4240
18	0,8485	12,5422	11,6937	36	0,6508	13,1820	12,5311				

Table 2-11 Excess CEO compensation including the variable "PROFSALES" in the service sector.

DMU	Non-executive ratios	Non-executive ratios X coefficient (1.3942)	Busy	Busy X coefficient (1.776)	Old	Old X coefficient (-1.758)	Ownership	Ownership X coefficient (-1.1926)
1	0,5625	0,7842	0,1875	0,3331	0,1875	-0,3297	0.0000	0.0000
2	0,5000	0,6971	0,1250	0,2220	0,1875	-0,3297	0.0000	0.0000
3	0,5625	0,7842	0,1875	0,3331	0,1875	-0,3297	0.0000	0.0000
4	0,4666	0,6506	0,2000	0,3553	0,1333	-0,2344	0.0000	0.0000
5	0,5333	0,7435	0,1333	0,2368	0,2000	-0,3516	0.0000	0.0000
6	0,5000	0,6971	0,1428	0,2538	0,1428	-0,2512	0.0000	0.0000
7	0,3333	0,4647	0,1666	0,2961	0,0833	-0,1465	0.0000	0.0000
8	0,5333	0,7435	0,2000	0,3553	0,2000	-0,3516	0.0000	0.0000
9	0,5833	0,8132	0,1666	0,2961	0,0833	-0,1465	0.0000	0.0000
10	0,2727	0,3802	0,0909	0,1615	0,0909	-0,1598	0.0000	0.0000
11	0,4615	0,6434	0,2307	0,4100	0,1538	-0,2705	0.0000	0.0000
12	0,5454	0,7604	0,0909	0,1615	0,0909	-0,1598	0.0000	0.0000
13	0,2307	0,3217	0,1538	0,2733	0,0769	-0,1352	0.0000	0.0000
14	0,4166	0,5809	0,1666	0,2961	0,1666	-0,2930	0.0000	0.0000
15	0,2857	0,3983	0,1428	0,2538	0,0714	-0,1256	0.0000	0.0000
16	0,5000	0,6971	0,1	0,1776	0,1000	-0,1758	0.0000	0.0000
17	0,3636	0,5069	0,1818	0,3230	0,1818	-0,3197	1.0000	1,1926
18	0,5454	0,7604	0,1818	0,3230	0,0909	-0,1598	0.0000	0.0000
19	0,375	0,5228	0,125	0,2220	0,0625	-0,1099	1.0000	1,1926
20	0,3636	0,5069	0,1818	0,3230	0,1818	-0,3197	1.0000	1,1926
21	0,6153	0,8579	0,1538	0,2733	0,1538	-0,2705	0.0000	0.0000
22	0,4285	0,5975	0,1428	0,2538	0.0000	0.0000	1.0000	1,1926
23	0,3636	0,5069	0,2727	0,4845	0,1818	-0,3197	1.0000	1,1926
24	0,5714	0,7966	0,1428	0,2538	0,1428	-0,2512	0.0000	0.0000
25	0,4285	0,5975	0,2142	0,3807	0.0000	0.0000	1.0000	1,1926
26	0,4166	0,5809	0,25	0,4441	0,2500	-0,4396	1.0000	1,1926
27	0,4666	0,6506	0,1333	0,2368	0,0666	-0,1172	1.0000	1,1926
28	0,6428	0,8962	0,2142	0,3807	0,2142	-0,3768	0.0000	0.0000
29	0,4166	0,5809	0,25	0,4441	0,1666	-0,2930	1.0000	1,1926
30	0,6153	0,8579	0,1538	0,2733	0,1538	-0,2705	0.0000	0.0000
31	0,6000	0,8365	0,2000	0,3553	0,3	-0,5275	1.0000	1,1926
32	0,4666	0,6506	0,2000	0,3553	0,1333	-0,2344	1.0000	1,1926
33	0,4166	0,5809	0,2500	0,4441	0,1666	-0,2930	1.0000	1,1926
34	0,5000	0,6971	0,1666	0,2961	0,1666	-0,2930	0.0000	0.0000
35	0,6000	0,8365	0,2000	0,3553	0,3000	-0,5275	1.0000	1,1926
36	0,4666	0,6506	0,2000	0,3553	0,1333	-0,2344	1.0000	1,1926
37	0,4166	0,5809	0,1666	0,2961	0,0833	-0,1465	1.0000	1,1926
38	0,5384	0,7507	0,1538	0,2733	0,1538	-0,2705	0.0000	0.0000
39	0,6000	0,8365	0,2000	0,3553	0,1000	-0,1758	1.0000	1,1926
40	0,4666	0,6506	0,2000	0,3553	0,0666	-0,1172	1.0000	1,1926
41	0,4545	0,6337	0,2727	0,4845	0,0909	-0,1598	1.0000	1,1926
42	0,6000	0,8365	0,2000	0,3553	0,1000	-0,1758	1.0000	1,1926
43	0,5000	0,6971	0,1428	0,2538	0,0714	-0,1256	1.0000	1,1926
44	0,5384	0,7507	0,2307	0,4100	0,0769	-0,1352	1.0000	1,1926
45	0,6666	0,9294	0,2222	0,3948	0,2222	-0,3907	1.0000	1,1926
46	0,5384	0,7507	0,2307	0,4100	0.0000	0.0000	1.0000	1,1926
47	0,5384	0,7507	0,2307	0,4100	0,0769	-0,1352	1.0000	1,1926
48	0,7000	0,9759	0,3	0,5330	0,2000	-0,3516	1.0000	1,1926
49	0,7142	0,9958	0,2142	0,3807	0.0000	0.0000	1.0000	1,1926
50	0,5000	0,6971	0,25	0,4441	0.0000	0.0000	1.0000	1,1926
51	0,8000	1,1153	0,2	0,3553	0,1000	-0,1758	1.0000	1,1926
52	0,6923	0,9652	0,2307	0,4100	0,0769	-0,1352	1.0000	1,1926
53	0,5384	0,7507	0,3076	0,5466	0,1538	-0,2705	1.0000	1,1926
54	0,8000	1,1153	0,2	0,3553	0,1000	-0,1758	1.0000	1,1926
55	0,6923	0,9652	0,3076	0,5466	0.0000	0.0000	1.0000	1,1926
56	0,6363	0,8872	0,3636	0,6460	0,0909	-0,1598	1.0000	1,1926

Table 2-12 Excess of compensation: aggregate value in the service sector.

DMU	Excess of compensation	Lncomp	Lncomp minus excess	DMU	Excess of compensation	Lncomp	Lncomp minus excess	DMU	Excess of compensation	Lncomp	Lncomp minus excess
1	0,7876	11,1223	10,3346	20	1,8276	11,9514	10,1238	39	0,9236	11,4579	10,5342
2	0,5894	11,3342	10,7447	21	1,7029	11,4968	9,79389	40	2,0179	13,0888	11,0709
3	0,7876	11,2934	10,5057	22	0,8607	11,4794	10,6186	41	2,2180	12,9555	10,7375
4	0,7715	11,4066	10,6351	23	2,0439	12,1582	10,1142	42	2,1261	12,8871	10,7609
5	0,6287	11,2882	10,6594	24	1,8644	11,8845	10,0201	43	2,3533	13,1528	10,7994
6	0,6997	11,4593	10,7596	25	0,7993	11,5533	10,7540	44	2,2180	12,9323	10,7143
7	0,6143	11,4037	10,7894	26	2,1708	12,2210	10,0502	45	2,3498	12,9835	10,6336
8	0,7472	11,1541	10,4069	27	1,7780	12,0259	10,2478	46	2,5691	12,9796	10,4104
9	0,9628	11,2282	10,2653	28	1,9628	12,4420	10,4791	47	2,3338	12,5717	10,2378
10	0,3819	11,5126	11,1307	29	0,9001	11,5117	10,6115	48	2,4874	12,9442	10,4568
11	0,7829	10,8661	10,0832	30	1,9246	12,5425	10,6179	49	2,4325	13,2383	10,8058
12	0,7621	11,4597	10,6976	31	0,8607	11,4349	10,5741	50	1,9641	12,6350	10,6710
13	0,4598	11,6750	11,2151	32	1,8569	12,7938	10,9369	51	1,9231	12,6460	10,7229
14	0,5839	11,1008	10,5168	33	1,9641	12,5245	10,5604	52	0,7535	11,5680	10,8153
15	0,5265	11,7426	11,2161	34	1,9246	12,7651	10,8404	53	2,2086	13,1030	10,8946
16	0,6989	11,6415	10,9426	35	0,7001	11,4312	10,7310	54	2,0813	12,7680	10,6873
17	1,7029	11,1712	9,46836	36	1,8569	13,2315	11,3745	55	2,1510	12,5210	10,3704
18	2,7044	13,2670	10,5625	37	2,2194	12,7395	10,5201	56	2,2086	13,2760	11,0675
19	2,5660	13,4546	10,8885	38	2,4874	12,7914	10,3040				

Table 2-13 Excess of compensation: aggregate value without "PROFSALES".

DMU	Excess of compensation	Lncomp	Lncomp minus excess	DMU	Excess of compensation	Lncomp	Lncomp minus excess	DMU	Excess of compensation	Lncomp	Lncomp minus excess
1	0,4182	11,71382	11,2956	38	0,4182	11,10082	10,6826	74	1,7183	12,93413	11,2158
2	0,5417	11,77646	11,2348	39	0,5367	11,43729	10,9006	75	1,5902	12,12811	10,5379
3	0,4327	11,33427	10,9016	40	0,6064	11,64153	11,0351	76	1,5504	12,54254	10,9921
4	0,6038	11,12232	10,5185	41	0,4256	11,74267	11,3171	77	1,5718	11,81303	10,2413
5	0,3868	11,42491	11,0381	42	1,5902	12,03147	10,4413	78	0,7142	11,43496	10,7208
6	0,3346	11,46331	11,1287	43	0,4182	11,75906	11,3408	79	1,4304	12,79386	11,3634
7	0,6119	11,40668	10,7948	44	1,3495	11,17127	9,8218	80	1,6344	12,52453	10,8901
8	0,6038	11,29342	10,6896	45	0,4584	11,41243	10,9540	81	1,7718	12,68032	10,9085
9	0,4600	11,42425	10,9642	46	0,8002	11,45793	10,6578	82	1,3885	12,12437	10,7358
10	0,3959	11,64499	11,2491	47	1,5726	11,95143	10,3788	83	1,5504	12,7651	11,2147
11	0,3861	11,3567	10,9706	48	1,7158	12,46427	10,7485	84	1,4423	12,35263	10,9103
12	0,4965	11,40376	10,9072	49	0,6150	11,90227	11,2873	85	0,5367	11,43123	10,8945
13	0,4615	11,28823	10,8267	50	1,3495	11,49681	10,1473	86	1,6344	12,6352	11,0008
14	0,5616	11,45939	10,8978	51	0,4232	11,43227	11,0091	87	1,4304	13,2315	11,8011
15	0,3585	11,76231	11,4038	52	0,7142	11,47943	10,7653	88	2,1388	12,81865	10,6798
16	0,2998	11,20544	10,9057	53	1,8199	12,1582	10,3383	89	0,6048	11,56893	10,9641
17	0,5493	11,15415	10,6049	54	1,4808	12,55751	11,0767	90	1,9027	13,10328	11,2006
18	0,7431	11,30075	10,5576	55	1,5902	12,23804	10,6478	91	1,5902	12,1255	10,5353
19	0,8520	11,22826	10,3763	56	1,4692	11,88457	10,4154	92	1,6375	12,64604	11,0085
20	0,2928	11,51263	11,2199	57	0,4870	11,43828	10,9513	93	1,7918	12,76864	10,9768
21	1,2123	11,847	10,6347	58	0,6632	11,55336	10,8902	94	1,6110	12,26208	10,6511
22	0,3868	11,33617	10,9493	59	1,9139	12,22104	10,3072	95	1,9102	12,93218	11,0220
23	0,5967	10,86617	10,2695	60	1,4268	12,70933	11,2826	96	1,7528	13,08883	11,3361
24	0,5019	11,15385	10,6520	61	1,3073	12,26059	10,9533	97	1,5190	12,32954	10,8105
25	0,6805	11,45978	10,7793	62	1,3536	12,0259	10,6723	98	1,8131	12,52144	10,7084
26	0,3490	11,675	11,3260	63	1,7292	11,63644	9,9072	99	1,6689	12,54227	10,8734
27	1,2641	11,88927	10,6252	64	0,6901	11,51175	10,8217	100	1,9027	13,27614	11,3735
28	0,5677	11,65355	11,0859	65	1,7041	12,44206	10,7380	101	1,8745	12,92968	11,0552
29	1,4086	12,31657	10,9080	66	2,0625	12,5717	10,5093	102	1,7373	12,95397	11,2167
30	1,9102	12,95559	11,0454	67	2,1871	12,94427	10,7572	103	1,3073	12,39773	11,0904
31	1,8562	12,96285	11,1067	68	2,1289	13,23837	11,1094	104	1,9825	13,01918	11,0367
32	1,7381	12,88712	11,1490	69	2,1871	12,79148	10,6044	105	2,3201	12,97965	10,6595
33	2,0918	13,15282	11,0610	70	1,5801	13,182	11,6019	106	1,9404	12,98353	11,0432
34	1,9519	12,98546	11,0335	71	1,3073	12,7959	11,4886	107	1,9102	12,99225	11,0821
35	1,4086	12,33391	10,9253	72	1,8298	12,73957	10,9098	108	1,7472	12,90873	11,1615
36	1,9102	12,93239	11,0222	73	2,4118	13,26701	10,8552	109	2,1912	13,4546	11,2634
37	1,8008	12,80814	11,0073								

Table 2-14 Excess of compensation: aggregate value without "PROFSALES"; manufacturing sector.

DMU	Excess of compensation	Lncomp	Lncomp minus excess	DMU	Excess of compensation	Lncomp	Lncomp minus excess
1	-0,10249	11,71382	11,81631	28	0,925647	12,12811	11,20246
2	0,123307	11,77646	11,65315	29	0,698318	11,81303	11,11471
3	-0,05125	11,42491	11,47616	30	1,124593	12,68032	11,55573
4	-0,08785	11,42425	11,5121	31	0,592649	12,12437	11,53173
5	-0,08199	11,46331	11,54531	32	0,504797	12,35263	11,84784
6	0,046339	11,64499	11,59865	33	1,215578	12,81865	11,60307
7	-0,09461	11,3567	11,45131	34	0,925647	12,1255	11,19986
8	-0,08785	11,76231	11,85016	35	0,689533	12,26208	11,57255
9	-0,10249	11,20544	11,30793	36	1,077288	12,93218	11,85489
10	-0,14191	11,30075	11,44266	37	0,934342	12,32954	11,3952
11	0,548723	11,847	11,29828	38	0,883095	12,54227	11,65917
12	-0,05125	11,33617	11,38742	39	0,934342	12,92968	11,99534
13	-0,12299	11,15385	11,27685	40	0,726701	12,31657	11,58987
14	-0,10249	11,43729	11,53978	41	0,990858	12,96285	11,97199
15	0,104337	11,65355	11,54921	42	0,944617	12,98546	12,04084
16	0,474381	11,88927	11,41489	43	0,726701	12,33391	11,60721
17	-0,10249	11,75906	11,86155	44	1,077288	12,99225	11,91496
18	-0,31802	11,41243	11,73045	45	0,709499	12,95397	12,24447
19	0,925647	12,03147	11,10583	46	0,575059	12,39773	11,82267
20	1,149867	12,46427	11,3144	47	1,276235	13,01918	11,74295
21	-0,29356	11,43227	11,72582	48	0,684652	13,1820	12,49735
22	0,113032	11,90227	11,78924	49	0,575059	12,7959	12,22084
23	0,925647	12,55751	11,63187	50	1,077288	12,80814	11,73086
24	0,925647	12,23804	11,31239	51	1,09862	12,90873	11,81011
25	-0,13178	11,43828	11,57006	52	0,575059	12,26059	11,68553
26	0,780313	12,70933	11,92901	53	1,10293	12,93413	11,8312
27	0,870738	11,63644	10,7657				

Table 2-15 Excess of compensation: aggregate value without "PROFSALES"; service sector.

DMU	Excess of compensation	Lncomp	Lncomp minus excess	DMU	Excess of compensation	Lncomp	Lncomp minus excess
1	0,782194	11,12232	10,34013	29	1,600273	11,49681	9,896533
2	0,611963	11,33427	10,72231	30	0,892277	11,47943	10,58715
3	0,782194	11,29342	10,51122	31	1,992071	12,1582	10,16613
4	0,737807	11,40668	10,66887	32	1,699873	11,88457	10,1847
5	0,65276	11,28823	10,63547	33	0,828543	11,55336	10,72482
6	0,71225	11,45939	10,74714	34	2,070329	12,22104	10,15071
7	0,574617	11,40376	10,82914	35	1,638025	12,0259	10,38788
8	0,7258	11,15415	10,42835	36	1,923113	12,44206	10,51895
9	0,981642	11,22826	10,24662	37	0,893936	11,51175	10,61781
10	0,379245	11,51263	11,13339	38	1,788708	12,54254	10,75384
11	0,726077	10,86617	10,14009	39	0,892277	11,43496	10,54269
12	0,823273	11,45978	10,63651	40	1,79132	12,79386	11,00254
13	0,405177	11,675	11,26982	41	1,875607	12,52453	10,64892
14	0,559608	11,10082	10,54121	42	1,788708	12,7651	10,97639
15	0,492529	11,74267	11,25014	43	0,695283	11,43123	10,73594
16	0,74279	11,64153	10,89874	44	1,79132	13,2315	11,44018
17	1,600273	11,17127	9,570999	45	1,875607	12,6352	10,75959
18	0,922873	11,45793	10,53505	46	1,848092	12,64604	10,79795
19	1,772275	11,95143	10,17916	47	0,767038	11,56893	10,80189
20	2,2673	13,15282	10,88552	48	2,15296	13,10328	10,95032
21	2,128208	12,93239	10,80418	49	1,996153	12,76864	10,77249
22	2,24451	12,98353	10,73902	50	2,012264	12,52144	10,50917
23	2,5355	12,97965	10,44415	51	2,15296	13,27614	11,12318
24	2,22575	12,5717	10,34595	52	1,979207	13,08883	11,10962
25	2,47858	12,94427	10,46569	53	2,128208	12,95559	10,82739
26	2,378685	13,23837	10,85968	54	2,064844	12,88712	10,82227
27	2,073392	12,73957	10,66618	55	2,602054	13,26701	10,66495
28	2,47858	12,79148	10,3129	56	2,407882	13,4546	11,04672

The 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.

BRICKLEY, J.; COLES J.; TERRY, R.; (1994). *"The Board of Directors and the adoption of poison pills"*; Journal of Financial Economics, June 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, pages 291-357.

THE COMBINED CODE; (2000). *" The London Stock Exchange Limited"*, June, 2000, London, UK.

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

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

CORE J.E.; HOLTHAUSEN R.W.; LARCKER, D.F.; (1999). *"Corporate Governance, chief executive officer compensation, and firm performance"*; Journal of Financial Economics 51, 1999, pages 371-406.

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, 1991,
JENSEN M.C.; MURPHY, K.J.; (1990). *"Performance pay and top managers incentives",* Journal of political economy 98, 1990, pages 225-264.

CURWEN P.; (1997.). "*Understanding the UK Economy"* 4th edition, Basingstoke: Macmillan 1997.

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

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

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.

GUENTER F.; STAPLETON R.C.; SUBRAHMANYAM M. G.; (1999). "*When are Options Overpriced? The Black-Scholes Model and Alternative Characterisations of the Pricing Kernel";* Paper provided by Economics Working Paper Archive at WUSTL in its series Finance with number 9904004, 1999.

HALLOCK K.F.; (1997). "*Reciprocally interlocking Boards of Directors and executive compensations*"; Journal of Financial and Quantitative Analysis 32, 1997, pages 331-344.

HEID F.; (1997): *Estimating the functional components of reward for management positions*, *SFB 303, Universität Bonn, Discussion Paper No. A-565.*

HOLTHAUSEN R.W.; LARCKER D.F.; (1996). *"The financial performance of reverse leveraged buyout"*; Journal of Financial Economics 43, 1996, pages 301-339.

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

JENSEN M.C.; MECKLING W.H.; (1976). *"The theory of the firm: managerial behaviour, agency costs and ownership structure "*in Journal of Financial Economics, 1976, pages 305-360.

KANG J.K.; SHIVDASANI A.; (1995). *"Firm performance, corporate governance, and top executive turnover in Japan"*; Journal of Financial Economics; 38 1995, pages 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"*; survival in American Economic Review papers and proceedings, May 1997 vol. 87 no. 2 pages 421-425.

KOSE J.; SENBET L. 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, 1993, pages 438-461.

MAIN B.; (1991). *"Top executive pay and performance",* Managerial and Decision Economics 12, 1991, pages 219-229.

MARRIS R.L.; (1964). *"The Economic Theory of Managerial Capitalism",* Macmillan, London.*1964.*

MAYER C.; (1996). "*Corporate Governance, Competition and Performance,*" OECD Economics Department Working Papers 164, OECD Economics Department.

MUELLER D.C.; YUN S.L.; (1997). "*Managerial discretion and managerial compensation"*; International Journal of Industrial Organization 15, 1997, pages 441-454.

MURPHY K.J.; (1985). "*Corporate performance and managerial remuneration: an empirical analysis"*, Journal of Accounting and Economics 7; 1985, pages 11-42.

ROSEN S.; (1992). "*Contracts and market for executives"*; in Werin L. And Wijkander H (eds.); Contract Economics, Oxford: Blackwell 1992, pages 181-211.

ROSENSTEIN S.; WYATT J. G.; (1994). *"Shareholder Wealth Effects When an Officer of One Corporation Joins the Board of Directors of Another"*; Managerial and Decision Economics, Vol. 15, No. 4, Special Issue: Aspects of Corporate Governance (Jul. - Aug., 1994), pp. 317-327.

SHIVDASANI A.; (1993). "*Board composition. ownership structure. and hostile takeovers"*. Journal of Accounting and Economics 16 1993.

SMITH C.W.; WATTS R.L.; (1992). "*The investment opportunity set and corporate financing, dividend and financing policies"* ; Journal of Financial Economics 32, pages 262-292 1992.

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.

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 and Organization; 4(1), March, 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, pages 171-94. Previously published: [1988]. New York.

YERMACK D.; (1996). "*Higher market valuation for firms with small Board of Directors*". Journal of financial economics 40, pages 185-211.