

# Pay me Right: Reference points and Executive Compensation

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## Abstract

This paper studies the impact of external reference points on the CEO compensation. We examine how a change in the reference value influences the compensation contracts of new managers and how these values affect the adjustment of the existing pay contracts; for the latter we confirm that compensation is rigid downwards. In line with the managerial power theory of executive pay, we also find that upward adjustments are on average stronger in the firms with more dispersed ownership and thus, stronger CEO power.

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## 1 Introduction

Executive pay practices have been in the centre of the academic interest for more than two decades. Among the many practices, the one that still generates lots of ambiguities is the use of compensation consultants, peer group comparison and external salary surveys to calibrate managerial pay (Wade, Porac and Polloc, 1997). On the one hand, such benchmarking may improve compensation contracts in the way that it helps the Board

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of directors determine the labor market conditions and gauge the value of the CEO's reservation pay (Holmstrom and Kaplan, 2003). However, a number of studies challenge this view by showing how the CEOs can influence the selection of the peer group (Wade, O'Reilly and Chandratat, 1990, Murphy, 1999; Porac, Wade and Polloc, 1999); these studies suggest that peer-group comparison and other benchmarks mostly serve to re-anchor the bargaining process that is, to introduce a new reference value in the pay bargaining between the Board and the CEO. This paper contributes to the existing literature by systematically exploring the impact of CEOs' reference values on the level and structure of their pay.

From the perspective of the CEOs, the reference values help them determine whether they are fairly paid (Falk, Fehr and Zehnder, 2006). That is, the CEO evaluates the appropriateness of her compensation by comparing her reward to a reference value; the latter is determined on the basis of the rewards of comparable persons within the organization or industry or, upon the CEO's expectations and aspirations (Wade, O'reilly and Pollock, 2006; Kahneman, 2002). Despite the recognition of the importance of the references and benchmarks in the executive compensation setting, the role of reference points is not yet fully understood. Can reference points drift executives' pay upwards? Can a change in one party's reference point motivate the re-negotiation of a contract and influence the subsequent bargaining outcomes? According to the classical bargaining theory, only a rise in one party's outside option or a change of its bargaining power can trigger the re-negotiation of the pay. Recently however, the importance of the reference values for bargaining, contracts and behavior has been gaining recognition in the literature. Compte and Jehiel (2003), for example, define reference points as the outcomes that the parties reach in the previous bargaining stages and theoretically model the way these references impact the subsequent bargaining process. In Hart and Moore (2006), the need to frame the agents' reference values and avoid shading and retaliation increases the efficiency of the rigid contracts. A reduction of the agents' utility and effort due to a divergence between their reference values and contract terms (i.e. rewards) has been also addressed in Akerlof and Yellen (1990) and Koszegi and Rabin (2006). In the setting of executive compensation, we would thus expect that any remuneration below the CEO's reference value will aggravate her utility, to which the CEO will respond by adjusting her effort downwards or by re-negotiating better terms with the Board. Apart from

preventing a decline in the CEO's effort, the literature advances several other reasons why the Board of directors may be sensitive to the CEO's reference levels and willing to re-negotiate and adjust the executive compensation accordingly. Managers gain power over the Board through persuasion and selective use of information; they can influence the Board by selecting outside board members, granting them benefits and favors (i.e. rent-sharing) or developing social relationships with them (Wade et al., 1990; Buchholtz, Young and Powell, 1998).

To analyze the impact of reference points on executive compensation, we draw on the evidence of a new European country, Slovenia. This country is interesting since, at a point during transition, Slovenian managers outlined the guidelines or, the so-called Criteria for executive compensation, through which they successfully advocated a rise in their pay. By reflecting what the managers at that time considered the appropriate reward for their work, this document provides us with a valid and accurate measure of the CEO's reference value. This is an advantage of our study since the identification of the reference value in general represents a compelling research problem. Given the fact that reference points are based on individuals' perceptions (Rizzo and Zeckhauser, 2003, Ezzamel and Watson, 2002), the validity of research findings depends on how well the researchers define and measure the reference points. No such concern applies in our case. We provide new and clear evidence on how the managers' reference value drift the levels of executive compensation upwards. The impact is observed for both the newly stipulated compensation contracts and, for the existing contracts. For the latter, the adjustments towards the reference compensation are rigid downwards. In addition, we find that the reference value exhibits a relatively stronger impact on the upward adjustments of the CEO pay in the joint stock corporations (in comparison with limited liability firms); in these firms, the ownership is more dispersed and consequently, the power of managers' in the pay bargaining process stronger.

Our study adds to the previous literature in many important aspects. First and most importantly, we provide unique evidence on how the CEOs' reference values influence the stipulation of the pay contracts and consequently, the level and structure of the executive pay. Second, the circumstances that facilitated the adoption of a new reference for the CEO compensation and the differences in the adjustment across alternative corporate forms support the managerial power explanation of the CEO compensation (Weisbach,

2006; Bebchuk et al., 2002). Finally, we contribute to the scarce research on the executive pay in other parts than Western Europe and the USA. Contributions from transition economies, in particular, are minor (i.e. Eriksson, 2005; Jones and Kato, 1996). Exploring how executives are remunerated in different social and organizational context is a warranted contribution to the general understanding of the compensation practices (Zajac and Westphall, 1995).

The remainder of the paper is organized as follows. The second section provides a brief overview of the relevant literature. The third section describes the institutional context in Slovenia and the design of the reference points. The fourth section presents the model specification, measurement and estimation issues and hypotheses. Data, sample and descriptive statistics are presented in the fifth section. The sixth section presents the empirical results. Last section concludes.

## 2 References points

In this section, we introduce the term "reference point" and present a short overview of the relevant theoretical and empirical findings. Different definitions of the reference points or reference values<sup>1</sup> can be found in the literature. Koszegi and Rabin (2006) for example, define the reference point as a person's probabilistic belief about a relevant variable, which is in turn determined upon the expectations about an outcome that a person had in a recent past. In the bargaining setting, Li (2004) and Compte and Jehiel (2003) suggest that reference points evolve endogenously, as offers in the prior bargaining phases. Hart and Moore (2006) define reference values by a range of possible outcomes that the parties determine with a contract. In relation to personal income, Rizzo and Zeckhauser (2003) consider reference points as the 'desired' or 'target' level of individual's earnings. These are in turn determined by the individuals' aspirations or, upon their comparison with the salient others. However, the psychological literature offers little guidance as to which reference group can be considered as relevant in this comparison (Akerlof and Yellen, 1990). For the purpose of empirical investigation, reference groups have been constructed as groups consisting of all the individuals living in the same country (Easterlin, 1995), as groups of people within the same profession, age and employment status. Finally, reference points may arise as a response to an external event (c.f. Perry

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<sup>1</sup>In this paper, the terms reference point and reference value are interchangeable.

and Zenner, 2001, Rose and Wolfram, 2000). An example of an exogenous reference point is the tax exemption of fixed pay over one million US dollars in the USA. This regulatory act significantly anchored the pay bargaining at the firm-level and (contrary to the expectations) led to an increase in the executive pay; in fact, once the regulator defined \$1 million compensation as reasonable, many companies below the threshold increased their cash compensation to \$1 million regardless of underlying economic circumstances (Rose and Wolfram, 2002).

A number of studies show that people's perceptions are "reference dependent" (Kahneman, 2002). A departure from a reference point introduces a 'gain-loss' perspective of an individual's utility (Koszegi and Rabin, 2006). In other words, the utility that an individual associates to a given outcome ('perceived utility') is determined by both, the outcome and its relation to the reference point. References influence people's aversion towards risk. According to the prospect theory the utility function breaks at the reference point and is considerably steeper for losses than for gains (Kahneman and Tversky, 1979) suggesting higher marginal utility of incremental income in the loss domain. Given the loss-aversion, individuals who are below their reference points may make more significant attempts to rise the existing outcome than those above the reference point. People consequently adopt different actions according to where a given outcome stands in relation to their reference values; their position in relation to a "reference value" determines their motivation to work, undertake challenges, exert effort. On a sample of physicians, Rizzo and Zeckhauser (2003) for example show that individuals are inclined to work more hours and take on additional tasks when their income is below their reference value (p. 915). Georgellis et al. (2008) study the adjustment towards reference wages and job conditions for German workers. The authors show how the people's inclination to change their current job relates to their desire to reach the reference pay; these adjustments are asymmetric and depend on the distance from the reference point and gender (Georgellis et al., 2008). Adams (1963), Akerlof and Yellen (1990) and Krueger and Mas (2004) argue that reference point influence people's incentive to exert effort. A worker that is paid less than what she perceives as fair, is likely to reduce her effort to re-establish her pay-to-effort ratio to a comparable level.

For an executive, the reference point is actually the benchmark, against which she evaluates her compensation. The reliance on the executive pay surveys and peer-group

comparison to determine the benchmark for CEO compensation is today a common practice. In their review of the compensation reports of a hundred firms in the S&P index, Bizjak et al. (2007) for example report that 96% of sample firms rely on peer group comparison in determining management compensation. Given the way they are constructed, these benchmarks rarely signal the labor market conditions but indeed reflect the CEOs' beliefs about what they should be paid. The industry comparison in the executive pay setting is in fact not neutral but often influenced by the CEO herself (Porac et al., 1999). In fact, firms rarely report what exactly constitutes their peer groups in the compensation setting; for those who do report, the peer group for compensation often differs from the one used in the analysis of company performance. Consequently, as argued by Bebchuck et al. (2001), a seeming objectivity in conformity with reference groups may limit the optimal contracting due to subjectivity of a comparison base.

The question we are addressing in this paper relates to the issues discussed above. In 1997, the Association of Managers in Slovenia drafted a document, with which they aimed to set the guidelines on what constitutes an appropriate remuneration for a Slovenian executive. In the bargaining setting of Compte and Jehiel (2003), we can think of these guidelines as the outcome of the first stage of the bargaining between the executives and, the public. In fact, given that they were defined at the country level and publicly discussed, the guidelines and the proposed pay levels already contained a consideration of the potential outcry that the executives may cause if they were too demanding in their claims. Still, the proposed pay levels were set well above the actual pay levels of the Slovenian executive at that time; in fact, with these guidelines (also Criteria on the executive pay or simply, Criteria), the Slovenian executives attempted to avoid pay-losses in the economic turmoil after the secession from Yugoslavia and to preserve their shares in the corporate rents. The aim of the discussions between the managers and the representatives of other interest groups (i.e. the Association of the employers; the Workers' Union, etc.) that surrounded the drafting and adoption of the guidelines was in fact also to influence the public perception of what constitutes a proper remuneration and, to re-anchor the firm-level bargaining at a higher level. We would consequently expect to observe adjustments in the executive compensation towards the values proposed in the Criteria. In the continuation of the paper, we refer to these value as the "reference pay".

### 3 Reference pay

Slovenian executives were prior to transition considered as the top-end employees; their fixed compensation was consequently a part of the general wage pool. The basic CEO wages were determined on the country level, while the cross-sectional differences in the salaries mostly reflected the differences in education and job characteristics. By the establishment of the Association of Managers at the beginning of transition (1989), the Slovenian executives created a new interest group and legitimized their differentiation from other workers. One of the main moves of the Association was a proposal to rise the executive pay in the largest firms to a basic value of 1:5 in relation to the average employee pay and, a modest performance bonus. A gradual rise of executive pay and pertaining perks received sharp public protests, which reflected the (still) egalitarian social values in the country and the prevailing convictions that managers should not be treated differently from other workers.

The corresponding political interests stimulated discussions in the parliament and ended up in the proposal to set an upper limit for executive pay and to provide comparable pay levels across different firms, especially those in substantial government ownership. To prevent the adoption of a rigid regulation, the Association of Managers prepared the Criteria on the executive pay. In this document, the top managers stipulated what they considered the "appropriate" structure and level of their remuneration. The Criteria were recognized also by the Chamber of Commerce, Chamber of Craft and Small business and by the Association of Employers in 1994. In 1997, the document got published in the Official Gazette and adopted the form of professional self-regulation. Despite the fact that its adoption was discretionary, it did represent a strong "change" in the executives' reference points. The guidelines introduced a substantial change in the definition of a "fair" CEO pay and raised the multiplier of the average wage to 4 for small firms, 6 for medium-size firms and to 8 for large firms (before 5)<sup>2</sup>. These levels of fixed pay could be additionally increased by a maximum of 25% if a firm outperformed the industry or conversely, proportionately decreased. The executives could also be paid a bonus, contingent on meeting specified performance targets (maximum 30 percent). In this regard, the Criteria recommended a limited set of performance measures, such as net

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<sup>2</sup>The classification of firms to different size-groups followed the definitions firms size of the Slovenian Company Act (1993).

earnings, increase of exports and increase or retention of employment level, return on equity (ROE) or on assets (ROA), market value and value added per employee. However, no guidance was provided in relation to the weights that the firms should attach to a specific benchmark. Also, bonus was to be paid out of firm profits; due to double taxation, this was however quite an unattractive type of compensation. In the late 90-ties, cash bonuses in fact represented only between 13-15 percent of total executive pay (Zupan, 1999; Merkač, 1997; Slapničar, 2002). The Criteria also defined a list of luxurious non-quantifiable fringe benefits, a provision for severance payments and some guidance for option compensation.<sup>3</sup>.

The Criteria on the executive pay were drafted in a very specific time of Slovenian transition. The conclusion of the privatization process in the mid-90ties brought the first real owners to Slovenian enterprises. This change implied a gradual re-distribution of power from managers and employees to the new owners. The Criteria can be in fact viewed as one of the ways through which the Slovenian managers tried to influence this re-distribution to their own benefit. As stated by one of the constitutive members of the Association: *‘the Criteria were designed to guarantee an appropriate pay in the times of financial distress....There is no pay limit for a good manager. The only upper limit for the pay is its public acceptance. We need to actively influence this acceptance by proposed pay levels. As pay ratios are now larger than before, we need to keep reconciling ours and public views on the subject as long as the new pay ratios are not perceived as appropriate and fair.’* (Piskar, 2004, p. 19).

## 4 Empirical model specification

This section provides an outline of empirical model that is used to tests the effects of the introduction of the Criteria on the CEO pay dynamics. We first describe the reference pay as determined in the Criteria and then derive the empirical model. Thus, the recommended cash-compensation for CEO in firm  $i$  in period  $t$  is limited to the following

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<sup>3</sup>For instance, they suggested that the option exercise price should not be lower than the average stock price from the preceeding year with no adjustments for market return. During the period of our analysis the average annual return of the Slovenian Stock Market Index 25.8 percent per year.



interval:

$$RefPay_{it}^{\min} = 0.75 \frac{W_{Econ,t} + W_{it}}{2} \cdot SM_{it} \quad (1)$$

$$RefPay_{it}^{\max} = (1.25 \frac{W_{Econ,t} + W_{it}}{2} \cdot SM_{it}) \cdot 1.3 \quad (2)$$

where  $\bar{W}_{Econ,t}$  denotes the average gross wage in the economy,  $\bar{W}_{it}$  is the average gross wage in the firm, and  $SM_{it}$  is the firm size multiplier. This multiplier is equal to 4 for small firms, 6 for medium size firms and 8 for large firms. A rule that relates the executive pay to firm size and average wage in a firm may be dynamically efficient since productivity and quality improvements allow a firm to increase executive pay through the increase of the average wage of the employees. Productivity improvements are essential for firm competitiveness, profitability and growth. Nevertheless, the relationship between the executive pay and firm size, a proxy for complexity of managerial work, was diluted by the fact that Criteria introduced only a rough distinction between three size classes. This rule, for example, offers no incentives for the executives already working in large firms. An additional diluting effect was in place due to the provision that the executive pay should be partly related to the average wage in the economy. According to this rule, an executive is not rewarded for performance of the firm or the complexity of its operations, but on factors over which she has no influence. Such a component provides a pay premium in all the firms that have a below- average productivity and penalizes those with above average productivity levels. The correction for this problem was provided by a lump sum increase or penalty of fixed pay rule ( $\pm 25\%$ ) based on relative firm performance. Hence, the reference pay for the fixed part ( $RefPay_{it}^{fix}$ ) of the executive pay is determined by the following formula:

$$RefPay_{it}^{fix} = \frac{\bar{W}_{Econ,t} + \bar{W}_{it}}{2} \cdot SM_{it}, \quad (3)$$

Total reference pay, on the other hand, considers also the impact of performance and continuous effect of firm size and can be written as:

$$RefPay_{it}^{tot} = RefPay_{it}^{fix} \left( \frac{1 + \pi_{it-1}}{1 + \pi_{t-1}^{med}} \right)^{\beta_{\pi}} \left( \frac{l_{it}}{l_t^{med}} \right)^{\beta_l}, \quad (4)$$

where  $\pi$  denotes the rate of return on assets and  $l$  is a number of employees.  $\beta_{\pi}$  and  $\beta_l$  capture the elasticities of the actual pay on reference pay, size and performance measures.

The rate of return on assets is lagged for one period as bonuses are paid in April of subsequent year and thus included in personal income tax statements for the next period. Corresponding variables with superscript *med* denote industry-specific median values (firm *i* is in industry *j*). We use median values since these are less sensitive to extreme values than the simple unweighted industry average. The simplest possible test of the relevance of the reference pay's impact on the managerial pay is to study the alignment of the actual pay and the reference pay for the newly appointed executives in the first year after appointment. By construction, this test does not allow an elimination of time invariant person and firm unobserved effects. However, in order to control for the observable firm and individual characteristics, we introduce fixed effects for organizational form: stock corporation vs. closely held corporation ( $D_{public}$ ), time ( $D_{time}$ ) and industry ( $D_{industry}$ ), and individual characteristics ( $P$ ), such as age and educational attainment. We also allow for different responses of actual pay to reference pay between firms with different organizational forms and include an interaction term between reference pay and the dummy for stock corporations firms ( $D_{public}$ ). In a log-linear form, the actual pay of manager *k* in firm *i* and period *t* is:

$$\begin{aligned} \ln ActPay_{kit} = & \rho \ln RefPay_{it}^{fix} + \rho_{Public} \ln RefPay_{it}^{fix} D_{Public,i} & (5) \\ & + \beta_{\pi} (\pi_{it-1} - \pi_{t-1}^{med}) + \beta_l (\ln l_{it} - \ln l_{it}^{med}) + \\ & + \beta_{Public} D_{Public,i} + \beta_P \ln P_{ki} + \beta_{Industry,j} D_{ij} + \beta_{Time,s} D_{ist} + \varepsilon_{it}, \end{aligned}$$

where  $\rho$  denotes the elasticity of actual pay to reference pay. A correlation between the average employee pay and the executive pay would cause the estimated elasticity  $\rho$  to be positive. Note however that, upon the positive elasticity, we can not conclude that the executive pay is determined in line with the reference pay. Only  $\rho$  equal to 1 can be taken as a proof that executive pay is determined in accordance with the Criteria. If this hypothesis holds for both organizational forms, the coefficient that captures the differential effect of reference pay for stock corporations ( $\rho_{Public}$ ) will be equal to 0. Both of these hypotheses are tested below.

The pay contracts for existing managers are normally stipulated for a longer (3-4 year) period. Consequently, the firms are unlikely to adjust the compensation of the incumbent managers to reference pay immediately. Hence, we specify that these adjustments take

place gradually. In this we follow Canarella and Nourayi (2008), who model gradual adjustment of the executive compensation in 549 US firms. Our specification, however, differs from theirs in three important ways. First, we specify an adjustment dynamics that relates the change in the actual pay to the change in the reference pay and the distance between the reference pay and the actual pay. Second, we allow for asymmetric adjustment of actual pay to positive and negative shifts in firm size and positive and negative distance between the actual and the reference pay. Third, we test whether the executive pay setting differs between the firms with different organizational forms.

In particular, we specify the adjustment of executive pay for incumbent managers in the following way<sup>4</sup>:

$$\Delta \ln ActPay_{kit} = \lambda_1 \Delta \ln \bar{W}_{it} + \lambda_2 \Delta \ln RefPay_{it}^{tot,ss} + \lambda_3 (PayGap_{it-1}).$$

Here  $\Delta \ln \bar{W}_{it}$  is the proportional change in the average wage of full time employees in the firm and  $\Delta \ln RefPay_{it}^{tot,ss}$  is the proportional change in the total reference pay due to the change in the average wage in the economy,  $\bar{W}_{Econ,t}$ , and the change in size multiplier,  $SM_{it}$ . While each of these terms reflects part of the change in the reference pay as defined in Criteria, only the second term is consistent with the introduction of Criteria. Namely, any rent-sharing rule that features simultaneous adjustment of compensation of employees and executives, would yield a positive elasticity  $\lambda_1$ , whereas only the introduction of the Criteria would yield also a positive  $\lambda_2$ . The last term on the right-hand side captures the change in the actual pay due to closing of the gap between reference pay and actual pay.  $PayGap_{it-1}$ , denotes the lagged pay gap, defined as the difference between the log of total reference pay and the log of actual pay;  $\lambda_3$  is the corresponding elasticity.

If all firms set executive pay according to the Criteria in each period, all three elasticities would be equal to 1. However, it is very likely that the CEO could more easily adjust her pay according to the growth of average wage in a firm, but much more difficult

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<sup>4</sup>Canarella and Nourayi (2008) study the following adjustment process of executive compensation to long-run or optimal pay:

$$\ln ActPay_{it} - \ln ActPay_{it-1} = \lambda (\ln OptPay_{it} - \ln ActPay_{it-1}),$$

where  $OptPay$  denotes the long-run or optimal pay. Since they do not observe optimal pay, they can not distinguish between contributions of change in the optimal pay and lagged deviation in optimal pay. Hence they can not study differences in adjustment of actual pay to different components of the difference between current optimal pay and lagged actual pay.

as a response to the pay gap, the shift in the firm size or to the change in the average wage in the economy. In line with previous findings, we expect that the larger the gap between the reference and actual pay, the faster the adjustment to the reference pay. The adjustments to close the pay gap are likely to be less frequent and as a consequence also lower in effect. For example, if only a quarter of firms adjust to the pay gap in a given period (every four years),  $\lambda_3$  is reduced to one quarter. If reference points influence the bargaining process,  $\lambda_2$  and  $\lambda_3$  would be different from zero. Given different underlying forces, we assume that the strength of the three factors differ i.e.  $\lambda_1 \neq \lambda_2 \neq \lambda_3$ .

Theoretical arguments and previous empirical findings suggest that adjustments to the reference points are asymmetric. For this reason we conjecture that the elasticities  $\lambda_2$  and  $\lambda_3$  differ depending on the shift of reference pay upwards or downwards and on the actual pay being below or above the reference pay. In particular, we expect greater elasticities for upward adjustments rather than for downward adjustments. Following Canarella and Nourayi (2008), we account for asymmetric adjustments with joint estimation of the terms  $\Delta \ln RefPay$  and absolute value of the change in reference pay, denoted by  $Abs(\Delta \ln RefPay)$ . Similarly, for the asymmetric adjustments to pay gap we account with  $\ln PayGap$  and  $Abs(\ln PayGap)$ . Where  $\ln PayGap > 0$ , the adjustment of the pay gap in subsequent period is captured by the sum of coefficients of  $\ln PayGap$  and  $Abs(\ln PayGap)$ ; and where  $\ln PayGap < 0$ , the adjustment is captured by the difference in coefficients of  $\ln PayGap$  and  $Abs(\ln PayGap)$ .

Thus far we have ignored the possibility that firms with different level of managerial power may exhibit different speeds of adjustment to the reference pay. According to Bebchuk et al. (2002) the power of managers to increase their actual pay may depend on the firm governance characteristics, which in turn determine the managers' possibility to influence the pay-setting negotiations. The most common variables that proxy the power of the board vs. power of managers are the ownership structure, the composition of the board and the tenure of the CEO. As none of these variables was available for our sample in 1997, we proxy the shareholders' power with a dummy for the company's legal form ( $D_{Corp,i}$ ). The dummy adopts the value 1, when the CEO manages a stock corporation and 0 when the CEO heads a limited liability firm (closely-held firm). At the time of privatization, the legal form of stock corporation was mandatory for the firms with at least 50 shareholders; these were generally firms with relatively more dispersed ownership

and control. We thus assume that in these firms, the CEOs have a stronger bargaining power vis-a-vis the boards than the CEOs in the limited liability firms. This suggests that the upward adjustments towards the reference pay should be relatively stronger, while the downward adjustments should be relatively weaker in the stock corporations. However, the legal form may as well exert the opposite effects: the stock corporations are larger and more visible, which makes their boards more sensitive to the public pressure concerning the executive pay. Assuming that various constituencies (e.g. labor unions, general public, ect.) believe that pay levels should be no more and no less than the "reference" pay, the average speed of adjustment is likely to be higher for stock corporations on both sides. For the downward pay adjustments, the latter hypothesis does not coincide with the one based on the managerial power theory. We capture the effects of the corporate form on the positive and negative gap with the interaction term  $Abs(\ln PayGap) \times D_{Corp,i}$  as well as with the joint estimation of the interaction terms of  $\Delta \ln RefPay \times D_{Corp,i}$  and  $Abs(\Delta \ln RefPay) \times D_{Corp,i}$ . The effect of the dummy for the legal form is fixed over time and hence not identified in the final specification.

In the specification (4) we consider the total reference pay, which is unobservable. In the empirical estimation we can only measure the fixed reference pay specified in (3), which differs from the total reference pay due to the fact that, in constructing the fixed reference pay, we are unable to account for the continuous change in the firm size and, for the performance effects. Size is measured by the number of employees ( $l$ ), whereas we proxy the performance with the firm's deviation of return on assets from the industry median ( $ROA_{it} - ROA_t^{med}$ ); these definitions correspond to what is stipulated in the Criteria. Market performance is not considered due to the fact that a large share of our sample consists of the firms that are not listed on the Stock market. In the estimation model, the performance is lagged for two years and firm size for one year.<sup>5</sup> Personal characteristics (age, gender, educational attainment) of managers are excluded from our analysis since they are fixed over time and hence not identifiable.

Based on all above, we estimate the following equation:

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<sup>5</sup>Performance is lagged for two years because differences of reference pay are estimated.

$$\begin{aligned}
\Delta \ln ActPay_{kit} = & \lambda_1 \Delta \ln \bar{W}_{it} & (6) \\
& + \rho_2 \Delta RefPay_{it} + \\
& + \rho_3 Abs \Delta RefPay_{it} + \\
& + \rho_4 \Delta RefPay_{it} \times D_{Corp,i} + \\
& + \rho_5 Abs \Delta RefPay_{it} \times D_{Corp,i} + \\
& + \rho_6 (\ln PayGap_{it-1}) + \\
& + \rho_7 Abs (\ln PayGap_{it-1}) + \\
& + \rho_8 (\ln PayGap_{it-1}) \times D_{Corp,i} + \\
& + \rho_9 Abs (\ln PayGap_{it-1}) \times D_{Corp,i} + \\
& + \beta_{10} (\ln l_{it} - \ln l_{it}^{med}) + \beta_{11} (\ln l_{it-1} - \ln l_{it-1}^{med}) + \\
& + \beta_{12} (\pi_{it-1} - \pi_{it-1}^{med}) + \beta_{13} (\pi_{it-2} - \pi_{it-2}^{med}) + \\
& + \sum_{j \in J} \beta_{Industry,j} D_{ijt} + \sum_{s \in T} \beta_{Time,s} D_{ist} + \\
& + \alpha_{ki} + \varepsilon_{kit},
\end{aligned}$$

where  $i = 1, \dots, N$  indexes the manager-firm and  $t = 1, \dots, T$  indexes the time period.  $D_5$  denotes the vector of industry dummies and year dummies. The  $n_t$  represents the time-specific term, the  $\alpha_{ki}$  is the manager-firm specific fixed effect and  $\varepsilon_{kit}$  is the random disturbance.

## 5 Data

### Data description

Testing our hypotheses before and after the adoption of Criteria in 1997 imposes significant data requirements. For this purpose we merged five distinct data sets that contain confidential<sup>6</sup> information on executive pay and publicly available accounting firm-level data. The identity of CEO for each firm was established from the Statistical registry of labor force (SRDAP), which contains employment records for all employees in each

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<sup>6</sup>Public disclosure of executive compensation has been mandatory since 2002. However, the Law (Slovenian Companies Act, 2001) only requires the firms to disclose the total compensation of the management board but requires no individual disclosure for the CEO.

organization, including top managers with regular employment contracts.<sup>7</sup> The employment record for each person contains information on occupation, and according to the international standard classification of occupations (ISCO) the top managerial position has a unique code. The registry also contains personal characteristics of all employees, such as age and educational attainment. Information on gross salaries of both CEOs and employees was retrieved from the income tax records compiled by the Slovenian Tax Office. Because of confidentiality, we analyzed the data in a safe room at the Slovenian Statistical Office. The Slovenian agency for public records (AJ PES) collects the accounting information of the firms. From this data source we use information on firms' industry affiliation (NACE). Slovenian Business registry (PRS) contains information on firms' legal forms of firms.

We exclude micro and small firms. In these firms, the compensation practices follow tax minimizing objectives and are less prone to rent extraction problems. We also exclude firms for which we could not find an employee with a CEO occupation code. Our data base contains information on all relevant variables from 1995 to 2004; due to the use of lagged variables in the estimations, we excluded the firms, for which we do not dispose with the data for at least three consecutive observations.

### **Summary statistics**

This subsection provides basic descriptive statistics for the sample of firms and CEOs used in empirical analysis. The key firm-level statistics are shown in Table 1. The average firm in our sample employs 325 employees, generates 29.1 million EUR of total sales and operates with 35.1 million EUR of assets. The average value added per employee equals 23.2 thousand EUR. The average profitability is relatively low with Return on Assets (ROA) equal to 2.2 percent and Return on Equity (ROE) of 5.8 percent.

For the purpose of our analysis, we classify the firms in two main groups: the closely held limited liability firm (Ltd in the UK or GmbH in Germany) and stock corporations (Plc in the UK or AG in Germany). Our sample is dominated by stock corporations (Plc). Since firms in the sample did not change the organizational form, this variable is time invariant. The share of stock corporations is 63.5 percent in all firms in the sample. Most of the firms (60 percent) belong to the mining, manufacturing and private utilities,

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<sup>7</sup>CEO hired through an intermediary firm can not be identified since such firms do not have a person with code for top executive position.

followed by construction and trade.

**Table 1: Descriptive statistics for firms**

Number of firms	668	
Average number of observations per firm	9.64	
<i>Size and Financial Indicators</i>		
	Mean	Std.Dev.
Employment	325	514
Turnover	29.1	68.8
Assets	35.1	85.1
Value added per employee	23.2	19.7
Debt to assets ratio	0.364	0.209
Return on assets	0.022	0.072
Return on equity	0.058	0.320
<i>Ownership variables</i>		
	All years	
Share of stock corporations	0.632	
<i>Sectoral structure of firms</i>		
	Share	
Agriculture, Hunting, Fishing	0.017	
Mining, Manufacturing and Utilities	0.596	
Construction	0.112	
Trade	0.089	
Catering	0.028	
Transport and Communications	0.048	
Business Services	0.058	
Health Care	0.029	
Cultural and Recreational Services	0.024	
Total	1.000	

Source: AJPES, PRS and own calculations.

Notes: All nominal variables are given in euros, constant 2004 prices.

Annual turnover and sales are given in million euros.

Value added per employee is reported in thousand euros.

Table 2 reports the descriptive statistics for executives in the sample. The average age was 46 years and the average share of women was 16.8 percent. More than 80 percent of all executives held a University degree or master degree. 11.9 percent of managers were replaced on average. The average gross salary for the CEOs that have been on the position for the whole period of our analysis is 69.7 thousand EUR per year, with



standard deviation of 35.3 thousand EUR <sup>8</sup> The average executive pay was increasing from 52.4 to 77.3 thousand euros (in constant 2004 prices), which suggests relatively low salaries in comparison to other EU countries.

**Table 2: Descriptive statistics for CEOs**

	Mean (Share)	Std.Dev.
Age	46.0	10.9
Women	0.168	0.374
University degree	0.816	0.388
CEO turnover	0.119	0.323
Gross annual salary	69.7	35.3

Source: AJPES, PRS and own calculations.

Notes: Under University degree is reported the average share of CEOs with at least 3-year undergraduate degree.

Tenure is reported from 1999 onwards.

Gross annual salary is reported in thousand euros (constant 2004 prices).

**Table 3: Annual Salaries for CEOs**

Year	All CEOs		Incumbent CEOs	
	Mean	Std.Dev.	Mean	Std.Dev.
1995	52.4	20.4	53.6	20.8
1996	56.5	23.6	57.7	23.6
1997	61.5	26.7	62.3	27.0
1998	66.3	28.7	67.3	28.9
1999	69.8	31.6	72.0	31.2
2000	71.8	32.5	73.9	33.0
2001	73.5	39.1	75.0	40.1
2002	74.6	39.0	75.9	40.0
2003	75.4	40.7	77.9	41.8
2004	77.3	45.8	79.5	47.3
Average	66.8	34.4	69.7	35.3

Source: AJPES, PRS and own calculations.

Notes: Incumbent CEOs were employed in periods t and t-1.

Gross annual salary is reported in thousand euros (constant 2004 prices).

Next, we illustrate the adjustment of the actual pay to the "fixed" reference pay, which was introduced in the 1997. Table 4 and Figure 5 document the dynamics of the

<sup>8</sup>The annual gross salary includes annual bonus.

ratio between the actual and the reference pay for the two organizational forms. Note that we calculated the "fixed" reference pay for each firm by using the annual gross wages of all full time employees, the average gross wage in the economy and the size class, as determined by the total assets, annual sales and total number of employees (including part-time workers). Since we use annual data, these ratios are typically underestimated for the managers that were replaced and thus have an incomplete employment spell in a given year. For this reason, we use only data for the "incumbent" executives, namely for the executives that were in executive position in period  $t - 1$ ,  $t$  and  $t + 1$ .

Table 4 shows that the average ratio between the actual and the reference pay increased over time. However, in the limited liability firms (closely held firms), the actual-to-reference pay ratio increased only by 10 percentage points, from 0.677 in 1996 to 0.778 in 2003, whereas in the stock corporations this ratio increased by 27 percentage points, from 0.728 to 0.995. The observed pattern is further illuminated in the density plots of the log of ratio between the actual and the reference pay (see Figure 5 below).<sup>9</sup> Comparison of distributions over time confirms a modest right-hand shift for closely held firms, whereas the distribution for the stock corporations shifted considerably, suggesting greater responsiveness of actual to reference pay in this group firms.

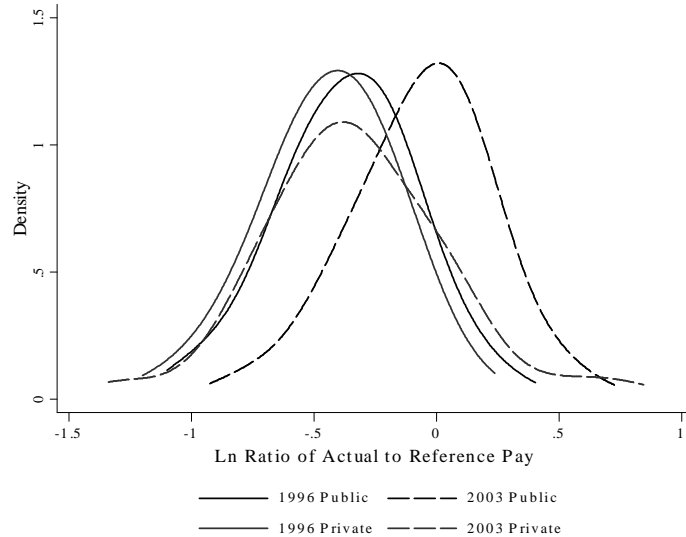
**Table 4: Dynamics of average actual to reference pay ratio, 1996-2003**

Year	Closely held firms		Corporations	
Year	Mean	Std. Dev.	Mean	Std. Dev.
1996	0.677	0.192	0.728	0.201
1997	0.697	0.226	0.769	0.234
1998	0.719	0.234	0.827	0.241
1999	0.720	0.282	0.868	0.263
2000	0.720	0.280	0.865	0.251
2001	0.727	0.375	0.876	0.299
2002	0.802	0.325	0.996	0.333
2003	0.778	0.351	0.995	0.315

Source: AJPES, SORS, KDD, PRS and own calculations.

Notes: Statistics are calculated for incumbent CEOs.

<sup>9</sup>The densities for the log of actual-to-reference pay ratios are estimated with the method of stochastic kernels. This method is convenient when the total number of observations is not large. This nonparametric method for plotting distributions generates smooth graphs. The method evaluates each point of the estimated density as a weighted sum of the data frequencies in the neighborhood of the point being estimated. In our case the weighting is a normal (gaussian) density. The bandwidth around the point of evaluation is 0.15. The larger is the bandwidth, the smoother is the estimated density. However, for our data, the qualitative features of the data are largely independent of selected bandwidth.



Source: SORS and own calculations.

## 6 Empirical results

In this section we present the estimates of the empirical models for the newly appointed and incumbent executives. We start with estimation of the pay equation for the newly appointed executives (5). The method of estimation is OLS on a pooled panel of manager-firm observations, since we can treat the lagged endogenous variables (e.g. labor productivity, employment, return on assets) as predetermined.

We present the estimates of the pay equation in Table 5. The key coefficient of interest is the elasticity of the actual pay to fixed reference pay. Failure to reject the null of  $\rho = 1$ , confirms determination of executive pay according to the Criteria. The estimated elasticities for the limited liability firms and stock corporations are 0.725 (*s.e.* = 0.14) and 0.914 (0.725+0.199, *s.e.* = 0.15) respectively. The null of  $\rho = 1$  cannot be rejected only for the case of stock corporations; thus, we can conclude that in these firms, the compensation of the newly appointed directors follows the reference wage, which was stipulated in the Criteria on the executive pay. Reference pay to a large extent incorporates the effect of size; however, it is not captured entirely since the construction of the reference pay accounts only for the three size brackets (i.e. small, medium and big firms). Consequently, we observe a positive and significant impact of the level of firm employment on the total

CEO pay. The corresponding coefficient suggests that an increase in the firm size by 10 percent (over the industry median) increases the total pay by 1.08 percent. In addition, we find that more productive firms tend to give larger rewards to CEOs, while this is not the case for relatively better performing firms (see the insignificant sign of the ROA coefficient). The impact of the firm productivity on the total pay is of the same magnitude as for the size; it must be however noted that the coefficient for productivity (see the variable *Log of value added per employee* in Table 5) does not capture the total productivity effect; a higher productivity allows the firms to pay higher wages to their employees, which reflects in the higher reference wage. Finally, the level of CEO pay does not depend on the legal form of the firm, neither on the personal characteristics (age and education) of the CEO. To sum up, reference points are shown to be an important determinant of the pay for the newly appointed CEOs in the stock corporations. In the closely held firms, we are not able to determine whether the increases in the CEO pay reflect the reference wage or are simply the result of a general wage increase in a given firm. Rather than the influence of a new reference value of the compensation contracts, the latter effect reflects the rent-sharing between the managers and the employees (i.e. the distribution of the newly created value added through higher wages of both managers and workers).

In the next step, we estimate the dynamic pay equation for the incumbent managers (6). In these estimation, we only include the CEOs that were in the firm at least in the periods  $t - 2$ ,  $t - 1$ ,  $t$  and,  $t + 1$ . The latter restriction is necessary to obtain correct measures for the annual growth rates of the CEO compensation. To ensure that the pay in year  $t$  refers to the entire year, the CEO's presence in period  $t + 1$  is required. In other words, we only consider firms where the same manager remained on the position in the consecutive year to which the change of pay refers. The results of the Blundell-Bond (1998) estimations of the pay difference equation are presented in Table 6 below. The Sargan test of the over-identifying restrictions confirms the global validity of the instruments employed in the estimation. The Arellano-Bond test for the second-order serial correlation in the first-differenced residuals also confirms the absence of the second-order autocorrelation. Standard errors are robust for heteroskedasticity; this correction is needed as the pay dispersion varies with the firm size.

The results of this final estimation generate some interesting conclusions. First, the

**Table 5: Estimates of Actual Pay Equation for New CEOs**

Variable	Coefficient (s.e.)
Reference pay	
Log of Reference Pay	0.715*** (0.14)
Log of Reference Pay $\ominus D_{Corporation}$	0.199 (0.16)
CEO characteristics	
Log of Age	0.106 (0.072)
$D_{HigherEducation}$	0.00582 (0.056)
Firm characteristics	
Log of employment $_{t-1}$	0.108** (0.036)
Log of value added per employee $_{t-1}$	0.108*** (0.022)
ROA $_{t-1}$	-0.159 (0.20)
$D_{Corporation}$	-2.096 (1.77)
Constant	2.148 (1.64)
Observations	353
Time and industry dummies	YES
R2 Adjusted	0.478
F(22,330) test	15.66
p-value	0.000

Source: AJPES, SORS, KDD, PRS and own calculations.

Robust standard errors in parentheses. \*\*\* p<0.001, \*\* p<0.01, \* p<0.05

Log of employment, log of labor productivity and ROA are included as deviations from industry median values.

strongest trigger of the CEO pay increases is the rise of the average employee wage  $\Delta \ln \bar{W}_{it}$  at the firm level. The coefficient amounts to 0.514 and is highly significant. This result indicates that the employees partly condition the increases in CEO salaries by the level of their own salaries. That is, through the salary increases, the managers and the employees jointly gain a share of the value added, which is generated in the firm (rent-sharing). The effect of the reference pay is estimated through the variable

$\Delta RefPay_{it}$ ; by including the term  $Abs\Delta RefPay_{it}$ , we control for a possible asymmetry in the adjustments in the case of a decrease in the reference pay. For limited liability corporations, the impact of  $RefPay$  is 0.128 and not significant. We calculate the value of the coefficient as the sum of the coefficient for  $\Delta RefPay_{it}$  and the  $Abs\Delta RefPay_{it}$ . For decreases of  $RefPay$ , we refer to the difference of the two coefficients; the final coefficient is 0.215 (0.1042<sup>10</sup>) and significant. The results suggest that, in the closely held firms, the CEO compensation is influenced by the reference values only when the latter decrease; that is, we only observe adjustments downwards and not upwards. For the stock corporations, the effect of a change in the reference pay is estimated by summing up  $\Delta RefPay_{it}$ ,  $Abs\Delta RefPay_{it}$ ,  $\Delta RefPay_{it} \times D_{Public,i}$  and  $Abs\Delta RefPay_{it} \times D_{Public,i}$ . The final coefficient is significant and amounts at 0.2671 (0.072). Thus, the executive pay in the stock corporations is much more sensitive to the increases of the reference pay. The adjustment downward (0.161) is however not significant, implying that the CEO salaries in these firms may be rigid downwards. Finally, how does the distance from the reference pay influence the pay adjustments? In this regard, we obtain the following results: the impact of prior period pay gap for managers of closely held firms, whose pay is *below* the reference point, is estimated at 0.120 (0.046) and significant. In the case of stock corporations, the impact of the gap is stronger, 0.249 (0.045) and also significant.

For managers that already earn more than the reference pay in the closely held firms, the gap has no effect on the pay adjustments. The downward rigidity of the CEO compensation is confirmed also for the case of stock corporations; the gap coefficient amounts to 0.188 (0.098) but is not significant. Large standard errors for the latter coefficients are due to the low number of the observations since only a few managers actually earn more than the reference value (during the period of our analysis). These results confirm what can be generally observed from our descriptive statistics: the upward response to the pay gap is stronger for stock corporations than for the limited liability firms, while downward adjustments are rigid for both groups of companies.

We also find that an increase in size in year  $t$  has a significant and positive effect on the pay growth; the effect of  $(t-1)$  is not significant. An increase of ROA provides no contribution to the explanation of the pay rises. It must be noted that the performance effect is partly incorporated into the rise of the average employee wage at the firm level.

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<sup>10</sup>The brackets report the corresponding standard errors.

To sum up, our empirical analysis of the CEO pay leads to three main conclusions. First, increases in the managerial salaries are to a large extent determined by the (corresponding) increases in the employee wage, which confirms that managers share part of their rents with the employees. Secondly, reference pay matters; we observe that the actual CEO pay adjusts in line with the changes in the reference pay and that the CEO pay grows stronger in the firms, where the CEO's compensation is more distant from the reference value. These adjustments are stronger in the stock corporations, where the ownership is more dispersed and consequently, the managers have a stronger influence over their compensation; the CEO salaries in these firms are also rigid downwards. These findings support the conclusion that reference values matter more in the firms with stronger managers (and weaker owners).

## 7 Conclusions

A number of theoretical and empirical evidence shows that people's actions can be partly explained by their desire to reach some reference income, which they consider as the fair compensation for their effort. Firm executives are subject to the same behavioral patterns; it has been largely observed that reference values play an important role in influencing the CEOs' perception of what they should get as the compensation for their work. Peer-group comparison and industry surveys are just few examples of the fact that the managers evaluate their pay in relation to certain benchmarks or, reference points. This paper builds on the observation from the Western practice but relies on a somehow different setting. We show the example of a new European country, where in order to prevent their share in the corporate rents, the managers joined their forces and self-determined the "reference" level for their compensation. We show how these (new) reference values significantly influenced the stipulation of the contracts for new managers and also, how they induced significant adjustments in the pay levels of the existing (incumbent) managers. The adjustments were stronger in the stock corporations, where (due to dispersed ownership) the managers had a stronger bargaining power against the owners. These results and the facts surrounding the introduction of the new reference value for the executive pay in Slovenia provide a country-example in support to the managerial power theory of the executive pay.

## References

- [1] Adams, J. S. (1963), Toward an understanding of inequity. *Journal of Abnormal and Social Psychology*, 67, 5: 422 – 436.
- [2] Anderson, T. W., Hsiao, C. (1981), Estimation of Dynamic Models with Error Components, *The Journal of American Statistical Association*, 76: 598 –606.
- [3] Akerlof, G. A., Yellen, J. L. (1990), The Fair Wage-Effort Hypothesis and Unemployment, *The Quarterly Journal of Economics*, 55, 2: 255 – 283.
- [4] Arellano, M. , Bond, S. (1991), Some Test Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations. *The Review of Economic Studies*, 58:277-297.
- [5] Bebchuck, A. L., Fried, J. M., Walker, D. I. (2001), Executive compensation in America: Optimal contracting or extraction of rents? NBER Working Paper Series 8661, <http://www.nber.org/papers/w8661>.
- [6] Bebchuk, A. L., Jesse, M. F., Walker, D. I. (2002), Managerial Power and Rent Extraction in the Design of Executive Compensation, *The University of Chicago Law Review*, 69, 3: 751 – 846.
- [7] Bebchuck, A. L., Fried, J. M. (2003), Executive Compensation as an Agency Problem. *Journal of Economic Perspectives*, 17, 3, 71 – 92.
- [8] Blundell, R., Bond, S. (1998), Initial conditions and moment restrictions in dynamic panel data models, *Journal of Econometrics*, 87: 115 – 143.
- [9] Bizjak, J. M., Lemmon, M. L., Naveen, L. (2007), Does the Use of Peer Groups Contribute to Higher Pay and Less Efficient Compensation, *availabl at www.ssrn.com*.
- [10] Canarella, G., Nourayi, M., M. (2008), Executive Compensation and Firm Performance: Adjustment Dynamics, Non-linearity and Asymmetry, *Managerial and Decision Economics*, 29: 293 – 315.
- [11] Eriksson, T. (2005) Managerial Pay and Executive Turnover in the Czech and Slovak Republics, *Economics of Transition*, 13, 4: 659 – 677.



- [12] Ezzamel, M., Watson, R. (1998), Market Comparison Earnings and the Bidding-Up of Executive Cash Compensation: Evidence from the United Kingdom. *Academy of Management Journal*, 41, 2: 221 – 231.
- [13] Ezzamel, M., Watson, R. (2002), Pay Comparability Across and Within UK Boards: An Empirical Analysis of the Cash Pay Awards to CEOs and Other Board Members. *Journal of Management Studies*, 39, 2: 207 – 232.
- [14] Easterlin, R. A. (1995), Will Raising the Incomes of All Increase the Happiness of All? *Journal of Economic Behavior & Organization*, 27: 35 – 48.
- [15] Falk, A., Fehr, E., Zehnder, C. (2006), Fairness Perceptions and Reservation Wages - The Behavioural Effects of Minimum Wage Laws. *The Quarterly Journal of Economics*, November: 1347 – 1381.
- [16] Farrell, K. A., Friesen G., C., Hersch, P. L. (2008), How do Firms Adjust Director Compensation?, *Journal of Corporate Finance*, 14: 153 – 162.
- [17] Georgellis, Y., Gregoriou, A., Tsitsianis, N. (2008), Adaptation Towards Reference Values: A non-linear perspective, *Journal of Economic Behavior & Organization*, 67: 768 – 781.
- [18] Hart, O., Moore, J. (2006), Contracts as Reference Points, Working paper, *available at www.ssrn.com*
- [19] Holmstrom, B., Kaplan, S. (2003), The State of US Corporate Governance: What's Right and What's Wrong? *Journal of Applied Corporate Finance*, 15: 8 – 20.
- [20] Jones, D., and Kato, T. (1996) The Determinants of Chief Executive Compensation in Transitional Economies: Evidence From Bulgaria, *Labor Economics*, 3: 319 – 336.
- [21] Compte, O., Jehiel, P. (2003), Bargaining with Reference Dependent Preferences, *available at www.ssrn.com*.
- [22] Jensen, M. C., Murphy, K. J. (1990), Performance Pay and Top Management Incentives, *Journal of Political Economy* 98: 225 – 264.

- [23] Jensen, M. C., Murphy, K. J. (2004), Remuneration: Where we've been, how we got to here, what are the problems, and how to fix them, *European Corporate Governance Institute, Finance Working Paper N.44*.
- [24] Jones, D., and Kato, T. (1996), The Determinants of Chief Executive Compensation in Transitional Economies: Evidence From Bulgaria, *Labor Economics*, 3: 319 – 336.
- [25] Kahneman, D. (2002), Maps of Bounded Rationality: A Perspective on Intuitive Judgment and Choice, Nobel Prize Lecture, December 8, 2002..
- [26] Kahneman, D., Tversky, A. (1979), Prospect theory: An analysis of decisions under risk., *Econometrica*, 47: 313 – 327.
- [27] Koszegi, B., Rabin, M. (2006), A Model of Reference-Dependent Preferences, *The Quarterly Journal of Economics*, 71, 4: 1133 – 1165.
- [28] Li, D. (2004), Bargaining with History Dependent Preferences, *Boston University, Mimeo*.
- [29] Merkač, M. (1997, Primerjava podatkov v strukturi plače, o razmerjih v plači, o stroških dela in o individualnih pogodbah v slovenskih podjetjih (*Eng. Analysis of pay structure, pay ratios, costs of labour and individual managerial contracts in Slovenian firms*). In (ed. Kežzar) Procesi inovativnega razvoja organiziranosti in motiviranja kadrov. Proceedings from XII. conference. Bled: Društvo za vrednotenje dela, organizacijski in kadrovski razvoj, May, 129 - 138 (in Slovenian).
- [30] Murphy, K. J. (1999), Executive Compensation, in Handbook of Labor Economics (Orley Ashenfelter and David Card eds.). Amsterdam: North Holland.
- [31] Perry T., Zenner, M. (2001): Pay for performance? Government regulation and the structure of compensation contracts. *Journal of Financial Economics*, 62: 453 – 488.
- [32] Perel M. (2003), An Ethical Perspective on CEO Compensation. *Journal of Business Ethics*, 48, 4: 381– 391.
- [33] Porac, J. F., Wade, J. B., Polloc, T. G. (1999), Industry Categories and the Politics of the Comparable Firm in CEO Compensation. *Administrative Science Quarterly*, 44: 112 – 144.

- [34] Rizzo, J., A., and R., J., Zeckhauser (2003), Reference Incomes, Loss Aversion, and Physician Behavior, *The Review of Economics and Statistics*, November 2003, 85, 4: 909 – 922.
- [35] Rose, N. L. and Wolfram, C. (2000), "Has the "million-dollar cap" affected CEO pay?", *American Economic Review*, 90: 197 – 202.
- [36] Bertrand M., Mullainathan S. (2001), Are CEOs rewarded for luck? The ones without principals are, *Quarterly Journal of Economics*, 116: 901 – 932.
- [37] Bruce, A., Buck T., Main, B. G. M. (2005), Top executive remuneration: a view from Europe. *Journal of Management Studies*, 42: 1493 – 1506.
- [38] Slapničar, S. (2002) Managing Earnings: Factors that May Influence the Choice of Depreciation Method in Large Slovenian Firms. *Economic and business review*, 4, 2: 103 – 127.
- [39] Piskar, S. (2004), Fifteen years since the establishment of the Association of Managers, which we can be proud of. In (eds. Krašovec, T., Seme, B.), *The Slovenian Association of Managers from 1989 - 2004*, 15 – 20.
- [40] Wade, J. B., O'Reilly, C. A. III., Pollock, T. G. (2006), Overpaid CEOs and Underpaid Managers: Fairness and Executive Compensation. *Organization Science*, 17, 5: 527 – 544.
- [41] Wade, J. B., O'Reilly, C. A. III., Pollock, T. G (1990), Golden Parachutes: CEOs and the Exercise of Social Influence. *Administrative Science Quarterly*, 35:587-603.
- [42] Zajac E. J., Westphal J. D. (1995), Accounting for the Explanations of CEO Compensation: Substance and Symbolism, *Administrative Science Quarterly*, 40, 2: 283 – 308.
- [43] Zupan, N. (2000) Nagrajevanje vodilnih uslužbencev (Rewarding of top management). In (ed. Turk) Zbornik 32. simpozija o sodobnih metodah v računovodstvu, financah in reviziji (Proceedings from the Conference Contemporary Methods in Accounting, Finance and Audit), Portorož, 22 - 24 March: 119 – 133. (in Slovenian)

**Table 6: Estimates of Pay Equation for Incumbent CEOs**

Variable	Coefficient (s.e.)
Growth of Average firm wage	0.514*** (0.097)
Reference pay and Pay gap	
Growth of Reference Pay	0.174* (0.078)
Abs of Growth of Reference Pay	-0.0455 (0.089)
Growth of Reference Pay $\text{CED}_{Corp,t-1}$	0.0403 (0.085)
Abs of Growth of Reference Pay $\text{CED}_{Corp,t-1}$	0.0988 (0.094)
Log Pay Gap $_{t-1}$	0.138* (0.062)
Abs of Log of Pay Gap $_{t-1}$	-0.0173 (0.073)
Log Pay Gap $_{t-1}\text{CED}_{Corporation}$	0.0808 (0.067)
Abs of Log Pay Gap $_{t-1}\text{CED}_{Corporation}$	0.0477 (0.067)
Firm characteristics	
Log of employment $_{t-1}$	0.106*** (0.032)
Log of employment $_{t-2}$	-0.041 (0.028)
ROA $_{t-1}$	0.161 (0.105)
ROA $_{t-2}$	-0.002 (-0.003)
Constant	-0.304 (0.17)
Specification	
Observations	2623
Wald chi2(27)	418.5
p-value	0.000
AR(1)	-9.522
p-value	0.000
AR(2)	0.104
p-value	0.918
AR(3)	-0.881
p-value	0.378
Sargan chi2(250)	254.49
p-value	0.409

Source: AJPES, SORS, KDD, PRS and own calculations.

First step robust standard errors in parentheses. \*\*\*  $p < 0.001$ , \*\*  $p < 0.01$ , \*  $p < 0.05$

Log of employment, log of labor productivity and ROA are included as deviations from industry median values.

All right-hand side variables are included as lagged instruments. Instruments for differenced equation are lagged values t-1 and t-2. Instruments for the