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Pay me Right: Reference values and Executive Compensation

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November 1, 2008

Abstract

This paper studies the impact of external reference values on managerial compensation contracts. We consider the effect of adoption of non-binding pay norms on actual remuneration behavior using a unique country example. We find that introduction of pay norms changed the reference values for CEOs and led to adjustment of executive compensation towards new equilibrium. These pay norms affected pay in firms with actual compensation below and above reference values. Further we find that reference values changed compensation in all types of firms, although executive compensation increased more in firms with more dispersed ownership and control. These results confirm the importance of reference values in bargaining process between owners and managers.

Keywords: Executive compensation, bargaining, reference values, ownership structure.

First draft. Please, do not quote.

JEL Classification Numbers: G30, G34

1 Introduction

People's perceptions are 'reference dependent' (Kahneman, 2002:459). The references reflect our aspirations or expectations about a given outcome. They determine our sense

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of entitlement, our perception of what is 'fair' or appropriate. Consequently, the utility that we assign to a given outcome depends on how this outcome positions in comparison to our reference point (Koszegi and Rabin, 2006). An increasing number of theoretical and empirical papers show that reference points importantly influence our attitude towards risk (Kahneman and Tversky, 1979), our motivation to exert effort (Akerlof and Yelen, 1990) and other economic choices (Camerer et al., 1997; Rizzo and Zeckhauser, 2003; Koszegi and Rabin, 2006, Georgellis et al., 2008). This paper analyses how the compensation contracts adjust to an 'outside' change in the reference value for executive pay. The behavioral theory in fact predicts that such adjustments will take place. It is not difficult to imagine that the parties would look outside the existing contract to see whether they are being treated fairly and consequently, try to re-negotiate better terms. This is particularly so when the 'new' reference value is far apart from the values stipulated in the contract (Hart and Moore, 2006). These new values will also condition the stipulation of new contracts since, in bargaining, the parties evaluate the potential outcomes in relation to their reference point (Copte and Jehiel, 2003; Li, 2004). The results of our empirical analysis indeed confirm that compensation contract adjust towards the new reference value for executive pay. This adjustments occur gradually and displays no asymmetry or non-linearity; the impact of the reference wage does not seem to be outweighed by the downwards rigidity of the salaries observed by some other studies.

Our study complements the previous literature in many important aspects. The empirical studies so far start with the assumption that the reference points are endogenous to each individual and thus, determined by the individual's past, pre-event experience or upon the individual's comparison with a chosen reference group. The validity of these studies consequently depends on how well they define the 'relevant' reference group or capture people's expectations. No such concerns apply in our case since we dispose with a clear and well-defined measure of reference values for executive pay. By applying the behavioral theory to study the dynamics of executive compensation, this paper also contributes to the stream of corporate governance literature. Within the vast empirical research in the area of executive pay, the dynamic nature of the relationship between executive compensation and its determinants remains relatively unexplored (see for instance, Canarella et al., 2008; Farrell et al., 2008, Conyon et al., 2000). Similarly, notwithstanding the extensive reliance on reference group comparison in the executive compensation prac-

tice, the empirical evidence in this regard remains quite limited (see for example, Bizjak et al., 2007). In addition, the specifics that surrounded the design of the external reference point (for more, see section 3) provide empirical supports to the managerial power theory of executive pay (Bebchuk et al., 2002). We show the example of a new European country - Slovenia, whose managers took full advantages of the changing circumstances and, by setting the reference point, provided themselves with new opportunities to extract rents. Finally, we provide new evidence to the scarce research on executive pay in Europe. Previous studies to a large extent focus on the Anglo-Saxon compensation practices. Contributions from other economies are minor, with two notable exceptions being Eriksson (2005) and Jones and Kato (1996). In line with Zajac and Westphal (1995) we firmly believe that exploring how the executives are remunerated in different social and organizational context importantly contributes to the general understanding of the compensation practices.

The remainder of the paper is organized in the following way. The second section provides a brief overview of the relevant literature. The third section describes the general context of executive remuneration in Slovenia, the design of the reference value and to its related propositions on the expected adjustments in the executive pay. The fourth section presents the empirical model and estimation issues. Data and empirical results are presented in the fifth and the sixth section. Last section concludes.

2 Reference points and individual's behavior

Behavioral theorists claim that people rely on 'reference points' when making choices and evaluating the outcomes of their behavior or the rewards for their actions. In this regard, the literature offers different definitions of what may constitute the individual's reference point. Koszegi and Rabin (2006) model the reference point as the person's probabilistic belief about a relevant variable. Their reference value is determined by the expectations about an outcome that a person has in a recent past. In bargaining, reference points may evolve endogenously and upon the outcome of the previous bargaining phase (Li, 2004; Copte and Jehiel, 2003). Hart and Moore (2006) define the reference values by the range of possible outcomes that the parties determine with a contract. In relation to personal income, Rizzo and Zeckhauser (2003) refer to the 'desired' or 'target' level of individual's earnings. Other empirical studies mostly assume that the parties determine their reference

values upon a comparison with the salient others. However, the psychological theory offers little guidance as to which reference group can be considered as relevant in this comparison (Akerlof and Yellen, 1990). For the aim of empirical work, 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 (Van de Stadt et al., 1985).

Regardless on how one defines it, a departure from the reference point introduces an additional 'gain-loss' components in an individual's utility function (Koszegi and Rabin, 2006). To put it differently, the utility that an individual associates to a given outcome ('perceived utility') will be determined by both, the outcome and its relation to a posited reference point. People will consequently derive different utilities and adopt different actions according to where a given outcome stands in relation to their reference value. According to the prospect theory, for instance, the utility function breaks at the reference point and is considerably steeper for losses than for gains (Kahneman and Tversky, 1979). Given the loss-aversion, individuals who are below their reference points may make more significant attempts to raise the existing level than those above the reference point. The dissutility due to one's divergence from the reference point may also stimulate risk-seeking and unappealing behavior. On a sample of young physicians, Rizzo and Zeckhauser (2003) for example show that individuals attribute a higher marginal utility to their earnings when they are below their reference value. Consequently, they are more inclined to undertake actions that increase their income than the physicians with incomes above their reference points (p. 915). In a similar vein, Georgellis et al. (2008) study the adjustment towards reference wages and job conditions for German workers. They confirm the asymmetry in the adjustment and find that the speed of adjustment depends on the distance from the reference point and gender (Georgellis et al., 2008).

Reference point influence people's incentive to provide effort (for a clear theoretical exposition of the impact of reference wage on individual's effort and motivation to work see Akerlof and Yellen, 1990; Koszegi and Rabin, 2006). A worker that is paid less than expected may feel that he is not treated fairly and consequently, reduce his effort (Akerlof and Yellen, 1990; Krueger and Mas, 2004). In Hart and Moore (2006), the need to anchor reference values ex-ante justifies the stipulation of rigid long-term contracts. By determining what each party is entitled to ex-ante, the contract precisely define the range

of outcomes, that each of the parties is entitled to and consequently, limit the likelihood of ex-post aggrievement, retaliation and shading (i.e. deadweight loss). Reference points influence the dynamics in the bargaining: due to the 'reference effects', the parties may be less willing to reach an agreement instantly and prefer to bargain gradually with the attempt to reach an outcome that is higher than any offer obtained from the prior bargaining phase (Li, 2004; Copte and Jehiel, 2003).

Our paper builds on these studies and analyses how the reference values influence the executive pay. We rely on an example of a young European country - Slovenia. Due to the specifics in the evolution of executive compensation, this country offers a perfect ground for our empirical analysis. With the attempt to prevent pay-losses and preserve their share in the corporate rents, a group of top Slovenian executives in 1997 drafted a document, which contained very clear criteria on what constitutes a 'fair' wage. Being completely voluntary, the main aim of the document was in fact to influence the public perception of what constitutes a proper remuneration, that is, to set a new reference value for executive pay. The values recommended in the document were set above the salary of the average Slovenian manager. Assuming that the predictions of the behavioral theorists hold, this 'raise' in the reference value should reduce the utility of most of the Slovenian managers. This should consequently motivate them to actions, which would move them to their reference values (i.e. demand a better contract). And, it should lead to an adjustment of the compensation contracts and increase the average level of executive pay. We elaborate more on these hypotheses in the next section.

3 Self-regulation, reference points and main hypotheses on compensation dynamics

Criteria on the executive compensation

The remuneration of Slovenian executives prior to transition was set in a pool with the wages of other employees. The basic wages were determined on the country level, while the cross-sectional differences in the salaries mostly reflected the differences in education and job characteristics. The establishment of the Association of Managers (Association) at the beginning of transition (1989) can be indeed considered as the first attempt of the Slovenian executives to create a new interest group and legitimize their

differentiation from other workers. The introduction of the Association was accompanied by first suggestions on the rise of the executive pay to a 1:5 ratio of the average employee pay and a modest performance bonus. The latter however stimulated public protests and consequently, a parliamentary discussion on a regulation that would set an upper limit for the executive pay and provide comparable pay levels across firms. To prevent the rigid regulation, the Association of Managers proposed the adoption of a voluntary recommendation, or the so-called 'Criteria on the executive pay'. The 'Criteria' were expected to provide a benchmark for 'fair' pay and limit the executives' appetites for excessive pay increases. In 1994, this recommendation finally got recognition by the main professional institutions (Chamber of Commerce, Chamber of Craft and Small business and the Association of Employers in 1994). In 1997 this self-regulatory recommendation was published in the Official Gazette of the Republic of Slovenia. The publication however introduced a substantial change in the definition of a 'fair' executive 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[1]. These levels of fixed pay could be raised by a maximum of 25% if a firm outperformed the industry and vice-versa. The executives could also be paid a bonus, contingent on the firm meeting specified performance targets. In this regard, the Criteria recommended a limited set of performance benchmarks, such as net earnings, increase of exports and increase or retention of employment level, return on equity (ROE), 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, this part of the variable pay was financed from firm profits, which made it quite an unattractive way to reward executives. Indeed, in the late 90-ties cash bonuses 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 and a provision for severance payments and some guidance for option compensation.[2].

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 for

[1] The definition of firm size and consequently, the classification of firms in different size-groups, followed the definitions of the Slovenian Company Act (1993).

[2] 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. In the period of our analysis and of the introduction of the Criteria, the average annual return of the Slovenian Stock Market Index 25.8 percent per year.

the first time real owners to Slovenian enterprises. This change implied a gradual redistribution of power from managers and employees to the new owners. The adoption of the Criteria was one way for Slovenian managers to increase their share in corporate rents, to publicly legitimize their income aspirations. 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 the acceptance of 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).

Hypotheses

For most of the Slovenian executives (see section 4), the Criteria introduced a reference point that was well above their actual salaries. The behavioral theories suggest that this raise in the reference point should reduce the utility that the manager assigns to the existing compensation (Koszegi and Rabin, 2006). This should consequently stimulate an adjustment process in the executive compensation towards the reference values. We can think of several factors that would drive such adjustments. First, the higher influence point will influence the bargaining for new compensation contracts. Copte and Jehiel (2003) propose a bargaining theory in which agents evaluate their utility according to reference points rather than outside options. Second, the change in the reference value for manager induce a re-negotiation of the current contracts. Given the substantial difference between this new reference and the contract terms, the managers will very likely adopt the new reference and evaluate the contracts accordingly (Hart and Moore, 2006). This may consequently lead to shading and retaliation or, reduced effort (Hart and Moore, 2006; Akerlof and Yellen, 1990). The owners may thus find it optimal to raise the level of compensation closer to the new reference values. Finally, the increase in the marginal utility of their income will stimulate the managers to make significant attempts to raise their future income (Rizzo and Zeckhauser, 2003). There are several ways through which managers can actually influence the wage-setting process and undertake actions that bring his compensation closer to the reference values. The power of managers to influence their own pay has recently emerged as a compelling explanation of

the sub-optimal pay-practices across the world (Bebchuk et al., 2001). Thus, we expect to observe pay raises for the managers whose earnings are below the reference values, determined by the Criteria on the executive pay. We however expect that these adjustment will be gradual. It takes time to replace the existing contract or to negotiate a new one. A number of other empirical studies indicate that the executive compensation is subject to an adjustment process and that firms are not able to adjust instantly to a new equilibrium levels (see for instance,Canarella and Nourayi, 2008, Kathleen et al., 2008, Conyon et al., 2000). Following previous findings (see for instance, Ezzamel and Watson, 2002; Jensen and Murphy, 1990), we also expect that these adjustment are not symmetric but rigid downwards and my vary with the distance from the reference value (Georgellis et al., 2008).

4 Empirical framework

The main aim of our paper is to explore the impact of reference values on the level of executive pay. For the purpose of our empirical analysis, we define the dependent variables as the log of real annual compensation. The reference values are defined in line with the recommendations of the 'Criteria' for managerial compensation. In this paper, we refer to these reference levels as the 'normative' compensation levels. The multiplier varies with firm size and equals 4 for small firms, 6 for medium-sized firms and 8 for large firms:

$$Norm_i = \frac{W_{Ec} + W_i}{2} \cdot Size\ multiplier$$

The choice of our explanatory variables (*Control variables*) relies on the previous literature in the field of executive pay (for a review, see for instance, Murphy, 1999). In line with the agency theory, we expect that the executive salary will increase with improved firm performance. In regard to the latter, we construct a measure of relative firm performance, that is the difference between the firm's and the industry Return on Assets (*ROA-ROAind*) and by the average firm labor productivity ('*Log of Labor productivity*'). Optimal contracts should also reward the manager for the complexity of her job, which we measure by the total number of firm employees ('*Log of Employment*'). We control for the impact of the managerial labor market: we expect the more qualified executives to be paid a higher wage. We thus construct a dummy variable '*CEO college Dummy*',

which equals one for the CEOs who hold at least a College degree and zero otherwise. Apart from the variables reflecting the owners' need to compensate the CEO's effort and to attract the most highly qualified executives, the level of managerial compensation may depend on other factors. According to the managerial power theory (Bebchuk et al., 2002), the amount of the executive compensation may vary with the firm governance characteristics, which measure the ability of managers to influence the pay-setting process and consequently, negotiate a higher total pay. Two variables, which should account for the executives' bargaining power, are included in our model. Fist, we include the variable '*Dummy Corporation*', to which we assign the value 1 when the executive is in charge of a public or private corporation and, zero otherwise. For a limited sample of the stock corporations only, we include the Herfindahl-Hirschman ownership concentration index as the proxy for the owners' power in the pay-bargaining (*HH5*). The main contribution of our paper however lies in the inclusion of the 'reference' value or the normative pay as the determinant of the executive pay. As argued in Section 2, reference values exert an important impact on the individual's behavior, their perceptions of whether they are being treated fairly and consequently, their motivation to exert effort or provoke a change. Anecdotal evidence from business practice seems to confirm the theoretical assumptions: the executives tend to evaluated their contracts by how well these contracts remunerate them in comparison to their peers (Bebchuk et al., 2002; Bizjak et al., 2008). A raise in the reference value should thus reduce their satisfactions with the existing pay levels and induce them to demand a higher pay. This should consequently reflect also in dynamics of the managerial pay. Previous empirical research and theoretical predictions (for more, see Section 2) suggest that these adjustments are asymmetric and non-linear. To put it differently, the direction in the adjustment may vary according to whether the actual salary is below or above the reference wage, while the speed of adjustment varies with the extent of the deviation from the reference wage (*Pay Gap*). We capture the potential asymmetry in the adjustment by including the absolute value specification of the gap with the threshold at (*ln Pay Gap*=0). We account for the nonlinearity in the speed of adjustment by including the square term of the gap between the normative and actual wage ($ln^2 Pay\ Gap$). All variables are lagged for one years. We assume that the firms can not adjust their compensation immediately. An increasing number of empirical studies (e.g. Canarella et al., 2008) recently underline that the relationship between executive

pay and its determinants is dynamic by nature. We thus estimate the dynamic panel-data model of executive compensation as follows:

$$\begin{aligned}
\ln Comp_{it} &= \gamma_1(\ln Norm_{it} - \ln Norm_{it-1}) + \\
&+\beta_1(\ln Pay\ Gap_{it-1}) + \\
&+\beta_2 Abs(\ln Pay\ Gap_{it-1}) + \\
&+\beta_3(\ln Pay\ Gap_{jit-1})^2 + \\
&+\beta_4(\ln Employment_{jt-1}) \\
&+\beta_5(ROA_{jit-1} - ROAind_{jit-1}) + \beta_6(\ln Labor_productivity)_{jt-1} \\
&+n_t + u_i + \varepsilon_{ijt}
\end{aligned}$$

where $i = 1, ...N$ indexes the firm (manager) and $t = 1, ...T$ indexes the time period. The n_t represents the time-specific term, the u_i is the manager (firm)-specific term and ε_{ijt} is the random disturbance. Because of the inclusion of the lagged dependent variable, the usual panel-data estimates are not appropriate since they produce inconsistent estimates of the regression parameters. Several solutions to eliminate these biases have been proposed in the literature (Anderson and Hsiao, 1981; Arellano and Bond (1991) and Bond and Blundell (1998). The Arelanno-Bond estimator (1991) exploits more information and can be viewed as a more efficient extension to the Anderson-Hsiao estimator. With regard to the former, The Blundell-Blond (1998) estimator is however more appropriate when the variables are close to random walk. When this is the case, the lagged levels of the endogenous variables are weak instruments for the first-differenced variables. The Blundell-Bond (1998) accounts for this inefficiency by including both lagged levels and the lagged differences of the endogenous variables. Since our data suggest that managerial pay follows the unit root, the Blundell-Bond (1998) is the appropriate estimator in our case.

Robustness check

In the estimation of the Models (1, 2 and 4-5), we only include the firm-observations, for which the change in the salary refers to the same executive. That is, we only include firm, where the same manager remained on the position in the consecutive years to which the change refers. It seems reasonable to assume that the compensation of the surviving

managers differs from the compensation of the managers that were replaced during the period of our analysis. This introduces a potential sample-selection bias. We correct for the latter by a joint estimation of the compensation equation and the sample selection equation, that is by including the estimate of Mills ratio in the Bond and Blundell (1998) equation as a two-step estimator ($f(\beta x)/F(\beta x)$). The Mills ratios are estimated from the probit model, where the dependent variable in the dummy variable for CEO change. This variable assumes the value of 1 if CEO changes and 0 otherwise. The selection equation is:

$$\Pr(D_{change_{ijt}} = 1) = \beta_0 + \beta_1 x_{1ijt-1} + \beta_2 x_{2ijt-1} + \beta_3 x_{3ijt-1} + \beta_4 D_{4ijt-1} + \beta_5 D_{5ijt} + \xi_{ijt}, \quad (1)$$

Here i denotes manager, j denotes firm and t denotes time period. x_1 is a vector of personal characteristics of CEO (age, educational attainment), x_2 is a vector of performance measures (return on assets, return on equity, log of value added per employee), x_3 is a vector of measures of firm size (log of employment), D_4 denotes organizational form dummy, D_5 denotes the vector of NACE 1-digit industry dummies and year dummies, and ε_{ijt} denotes the error. We assume that error terms have zero mean and variances 1 and σ, respectively. The selection bias is only relevant in estimation of (1) when there is correlation between error terms, which we denote by ρ. Therefore the key test of presence of selection bias is in ρ being different from 0. By incorporating this selection equation we also control for the impact of the alternative governance mechanism, namely the CEO replacement in the event of poor performance. These two control mechanisms are seldom addressed simultaneously in the compensation literature. A notable exception is the analysis of executive compensation by Rennebog and Trojanowski (2003).

5 Data

Data description

Testing the propositions on executive pay 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 information on executive pay and publicly available accounting firm-level data. The Slovenian agency for public records (AJPES) collects firm-level balance sheet and income statement data. From this data source we use information on

firms' characteristics (NACE). Slovenian Business registry (PRS) contains information on firms' legal forms such as limited liability company, closely held corporation and public corporation. From the Slovenian Central Securities Clearing Corporation (KDD) we obtained information on the ownership shares of top five owners and their institutional identity.

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 organization, including top managers with regular employment contracts.[3] 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, educational attainment. The longitudinal nature of the data enables us to calculate the CEO tenure in the firm. Information on labor income was retrieved from the income tax records compiled by the Slovenian Tax Office. From this source we use information on gross salaries of both CEOs and employees. Because of confidentiality, we analyzed the data in a safe room at the Slovenian Statistical Office.

The sample of firms and CEO annual salaries used in estimations is not complete. We excluded micro and small firms, where separation of ownership and management is less frequent. In such firms, 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. Third, due to use of lagged variables in estimations, we excluded firms without data for at least three consecutive observations. Fourth, ownership variables are only available for the period after privatization from 1999-2004. This explains the reduction in the number of sample of firms in some of the regression models (model 5 and 6).

Summary statistics

This section 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 employes, generates 29.1 million Euro of total sales and operates with 35.1 million Euro of assets. The average value added per employee equals

[3] CEO hired through an intermediary firm can not be identified since such firms do not have a person with code for top executive position.

23.2 thousand Euro. 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 limited liability corporations (Ltd in the UK or GmbH in Germany) and stock corporations (Plc in the UK or AG in Germany). Among the latter, we distinguish betwen public or listed corporations and private (non-listed) corporations. Our sample is dominated by stock corporations (Plc). In 2004 these firms represented 60 percent of all the firms in our sample, this is 4.8 percentage points less than in 1999. The average share of listed corporations also declined in the same period, from 14 to 11.5 percent. The ownership concentration in the stock corporations remains relatively low but has been concentrating over time (see Herfindahl-Hirschman concentration index in Table 1). Most of the firms (60 percent) belong to the mining, manufacturing and private utilities, followed by construction and trade.

Table 2 reports the descriptive statistics for CEOs in the sample. The average age of CEO is 46 years old. Among all the executives, 16.8 percent are women. More than 80 percent of all executives hold an University or higher degree. The average manager has been on the position for 4.43 years, which implies a relatively low turnover (11.9 percent per year). It must be however noted that this the reported tenure is underestimated since we do not dispose with information for executive positions prior to 1999. The average gross salary for the CEOs that have been on the position for the whole period of our analysis is 69.7 thousand Euro per year, with standard deviation equal to 35.3 thousand euros.[4] These values are reported in constant 2004 prices. Although it has been increasing across the years of our analysis, the average salary of a Slovenian executive remains relatively low in comparison with other European countries.

This paper focuses on the change in the average executive salary, which followed the introduction of the Criteria on the executive compensation in 1997. As evidenced in Table Table 4, the average pay of the CEO[5] has been raising towards the 'reference' pay during the period of our analysis. This adjustment if observed in all types of firms, regardless their organizational form. However, as evidence in Tables 4 and 5 and Figures 1and 2 below, the convergence towards the reference pay in the limited liability corporations

[4]The annual gross salary includes annual bonus.

[5]The data refer only to the CEOs that have been on the same positions for the whole 1999-2004 period.

Table 1: Descriptive statistics for firms

Number of firms	668
Average number of observations per firm	9.64

Size and Financial Indicators

	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

Ownership variables

	1999	2004
Share of incorporated firms	0.648	0.600
Share of public firms	0.140	0.115
Ownership concentration Index (HH5)	0.199	0.344
Ownership concentration Index (HH3)	0.192	0.339

Sectoral structure of firms

	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.

seems to be slower and less pronounced than in the stock corporations. On the other hand, in medium and large private corporations[6] the ratio between the actual and reference wage increased from 0.749 and 0.755 to 0.921 and 0.966 between 1997 and 2004, respectively.

[6]I.e. firms without publicly traded shares.

Table 2: Descriptive statistics for CEOs

	Mean (Share)	Std.Dev.
Age	46.0	10.9
Tenure	4.43	2.99
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).

In public stock corporations managerial pay initially started at much higher initial values: 0.863 and 0.828 in medium and large firms respectively. At the end of the period (2004), the average wage of the executives in these firms exceed the reference wage, which was determined in the Criteria on the executive compensation.

Table 3: Annual Salaries for CEOs

	All CEOs		Incumbent CEOs	
Year	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).

Table 5 shows the dynamics of average and standard deviation of actual to normative

pay ratio only for firms that were present in the data set in all years of available data. Also for this narrower set of firms, we observe an increase in the average actual to normative pay ratio.[7] Moreover, the standard deviations of the distributions increased for all three sets of firms.

Table 4: Dynamics of average actual to normative pay ratio, 1995-2004

	Private limited firms		Private corporations		Public corporations	
Year	Medium	Large	Medium	Large	Medium	Large
1995	0.668	0.674	0.762	0.725	0.817	0.768
1996	0.652	0.681	0.742	0.697	0.813	0.762
1997	0.643	0.695	0.749	0.755	0.863	0.828
1998	0.666	0.723	0.785	0.817	0.976	0.87
1999	0.703	0.705	0.817	0.863	0.897	0.881
2000	0.724	0.698	0.797	0.863	0.984	0.906
2001	0.706	0.701	0.771	0.844	0.986	0.93
2002	0.775	0.777	0.950	0.997	0.928	1.058
2003	0.789	0.776	0.922	0.997	0.956	1.042
2004	0.746	0.802	0.921	0.966	1.011	1.115

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

Notes: Averages are calculated for observations without CEO change.

Table 5: Dynamics of average actual to normative pay ratio, 1995-2004

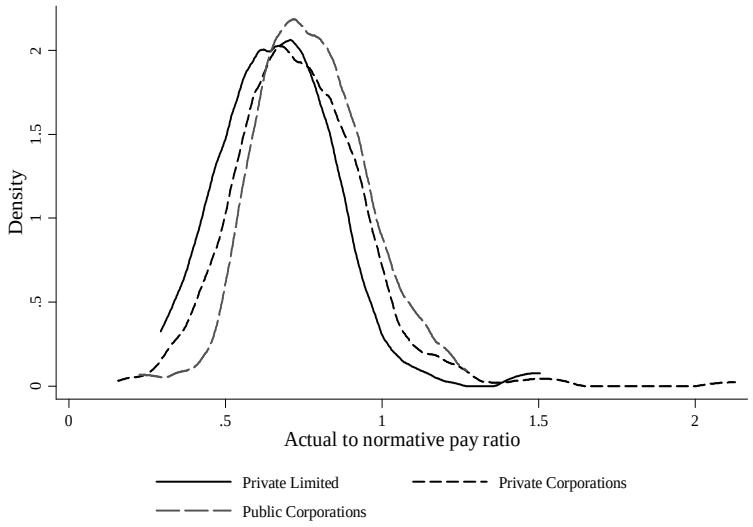
	Private limited firms		Private corporations		Public corporations	
Year	Mean	Std.Dev.	Mean	Std.Dev.	Mean	Std.Dev.
1995	0.691	0.215	0.740	0.217	0.774	0.164
1996	0.684	0.221	0.726	0.192	0.771	0.212
1997	0.706	0.231	0.775	0.222	0.843	0.275
1998	0.754	0.260	0.840	0.236	0.887	0.255
1999	0.755	0.300	0.881	0.368	0.883	0.274
2000	0.766	0.302	0.875	0.281	0.903	0.361
2001	0.772	0.425	0.843	0.271	0.941	0.407
2002	0.814	0.337	0.978	0.318	1.020	0.413
2003	0.846	0.419	0.974	0.288	1.018	0.417
2004	0.825	0.387	0.952	0.297	1.093	0.598

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

Notes: Averages and standard deviations are calculated for observations without CEO change and firms that were present in the entire period 1994-2004.

[7] This pattern is also observed for median actual to normative pay ratio.

The observed pattern of adjustments towards the reference pay is further confirmed also in Figures 1 and 2, which compare the distribution of the ratio between actual and reference wage for the three groups of firms in 1995 and 2004.[8] As shown in Figure 1, the distribution of firms in 1995 does not differ much between the three corporate groups. Over time however, only the distributions for public and private corporations flattened (increase in variance) and achieved mean ratio close to 1 on average.

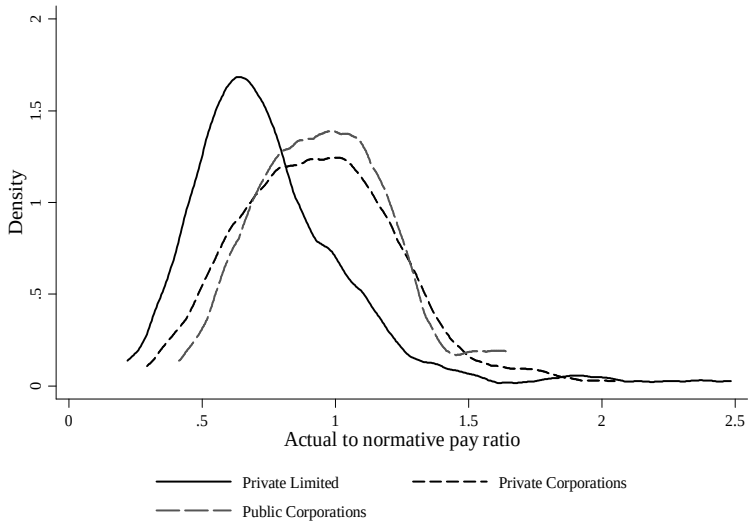


Source: SORS and own calculations.

Figure 1: Distribution of actual to normative pay ratio, 1995

The distinction in evolution of pay between private limited companies and corporations is even more pronounced when we consider the share of managerial pay in the total value added. The numbers are reported in Table 6 below. The percentage of average managerial pay in the total value added of private limited corporations altogether barely increased by 0.1 percentage points in the 1995-2004 period, whereas in private and public corporations the increase was more substantial: from 1.820 to 2.611 percent and from 1.304 to 1.702 percent, respectively.

[8] The distributions of actual-to-normative pay ratios are shown using the method of stochastic kernels, which is convenient when the total number of observations is not large. This nonparametric method for plotting size 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 size of bandwidth around the point of evaluation is 0.45, which is used throughout this paper. 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.

Figure 2: Distribution of actual to normative pay ratio, 2004

Table 6: Dynamics of managerial pay in value added, 1995-2004

	Private limited firms		Private corporations		Public corporations	
Year	Mean	Median	Mean	Median	Mean	Median
1995	1.844	1.531	1.820	1.587	1.304	0.927
1996	2.218	1.482	1.951	1.540	1.183	0.887
1997	1.863	1.519	3.393	1.686	1.208	0.997
1998	1.954	1.508	2.175	1.842	1.328	1.036
1999	1.905	1.375	2.272	2.010	1.396	1.174
2000	1.969	1.284	2.295	1.989	1.458	1.170
2001	1.944	1.412	2.326	1.995	1.398	1.144
2002	1.831	1.176	2.312	1.948	1.520	1.216
2003	1.984	1.340	2.423	2.008	1.479	1.264
2004	1.944	1.398	2.611	2.017	1.702	1.236

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

Notes: Average and median shares of managerial pay in value added are given in percent.

6 Empirical results

The results of the Blundell-Bond (1998) dynamic estimations are presented in Table 7 below. The Sargan test of the over-identifying restrictions confirms the global validity of the instruments employed in the estimation. The Arelano-Bond test for the second-order serial correlation in the first-differenced residuals also confirms the absence of the

second-order autocorrelation. The positive and highly significant coefficient of the lagged-dependent variable confirms that the executive compensation displays an adjustment dynamics. The estimated regression coefficients for the difference between the actual and normative pay (*Pay Gap*) reflects the short-term adjustment of the executive compensation to the reference value for executive pay. The coefficient is positive in significant, implying that the deviation from the reference wage in the previous year leads to a correction of this gap through an increase in the pay in the next period. The insignificant coefficient on Abs (*Pay Gap*) show that these adjustments are not asymmetric: executive salaries seem to adjust toward the reference wage also for the executives that receive the wages above their reference values. The impact of the reference value on the executive pay is thus not outweighed by the downward rigidity of salaries, observed in the previous studies. Moreover, differently from some previous findings (Georgellis et al., 2008), the speed of adjustment does not depend on the size of the deviation from the reference values. Interestingly enough, the pay increases are significantly influenced by the change of the normative wage (*DLog Normative Comp*). Recall that the Criteria on the executive pay define the reference value of the firm executives as a multiple of the average wage in the firms and in the economy. Thus, wage increases at the firm level may be one of the ways through which the executives could 'exploit' the new Criteria in order to create a new path towards higher rents. The results of our empirical analysis suggest that this in indeed the average practice: some of the pay increases relate to an increase in the average employee wage that is not linked to an improvement in labor productivity.

In line with our expectations, the executive salary responds positively to above-industry performance. The corresponding regression coefficient is positive, although not statistically significant. We also find that the executives in the firms with a larger number of employees on average receive higher salaries. Furthermore, the impact of the organizational form is positive and statistically significant across all the model specifications. This is somehow in line with the managerial power theory of executive pay (Bebchuk et al., 2002). By definition, the ownership is more dispersed and the shareholders' control is lower in stock corporations than in the limited liability firms. Consequently, the information asymmetry and the power of managers to demand for a higher pay is stronger in the former firms, leading to a higher increase of the managerial pay.[9] No significant

[9]The pay dynamics differs between the two main corporate forms (limited liability firms and stock corporations), while we find no significant difference between the public and private share corporations

Table 7: GMM estimates of CEO pay equation

Dependent variable: Log of CEO Gross Compensation						
Variable Equation	(1)	(2)	(3)	(4)	(5)	(6)
Log CEO Compensation (-1)	0.919***	0.905***	0.886***	0.849***	0.839***	0.802***
	(0.079)	(0.079)	(0.075)	(0.11)	(0.10)	(0.12)
DLog Normative Comp.	0.504***	0.503***	0.434***	0.320**	0.319**	0.360*
	(0.076)	(0.076)	(0.10)	(0.12)	(0.12)	(0.15)
Log Pay Gap (-1)	0.307**	0.249**	0.207**	0.198	0.173	0.221*
	(0.099)	(0.096)	(0.077)	(0.11)	(0.11)	(0.11)
Log Pay Gap Abs (-1)	-0.0003					
	(0.064)					
Log Pay Gap Squared (-1)		0.0646		-0.0942	-0.0819	
		(0.052)		(0.078)	(0.075)	
Dummy Corporation	0.127**	0.131**	0.111**			
	(0.042)	(0.043)	(0.036)			
CEO Age (-1)	0.00373	0.00383	0.00283	0.000748	0.000543	0.000475
	(0.0020)	(0.0021)	(0.0021)	(0.0026)	(0.0026)	(0.0025)
CEO College Dummy (-1)	-0.0390	-0.0463	-0.0355	0.0281	0.0358	0.0789
	(0.057)	(0.057)	(0.056)	(0.087)	(0.084)	(0.083)
Log of Employment (-1)	0.0794***	0.0776***	0.0507*	0.0728*	0.0672*	0.0444
	(0.023)	(0.023)	(0.022)	(0.029)	(0.028)	(0.033)
Log of Labor productivity (-1)	0.0178	0.0210	0.0231	-0.00854	0.00443	0.0301
	(0.021)	(0.021)	(0.021)	(0.033)	(0.034)	(0.032)
ROA (-1) - ROAind (-1)	0.108	0.0976	0.269***	0.0990	0.0242	0.223
	(0.092)	(0.092)	(0.080)	(0.20)	(0.21)	(0.28)
Ownership HH5 (-1)				0.00547		0.0160
				(0.072)		(0.065)
HH5 (-1) * log Pay Gap (-1)					0.00282	
					(0.0040)	
Government ownership (-1)				0.00068		0.000221
				(0.00084)		(0.0011)
Mills ratio			-0.371*			-1.068
			(0.15)			(0.78)
Constant	-0.006	0.131	0.764	1.406	1.452	1.758
	(0.80)	(0.79)	(0.74)	(1.10)	(1.08)	(1.10)
Observations	4301	4301	4673	1258	1258	1442
Wald Chi2	2365	2358	2827	665.7	720.1	709.6
p-value	0.022	0.022	0.030	0.022	0.022	0.035
AR Tests	2	2	2	2	2	2
AR(1)	-10.198	-9.977	-11.878	-5.675	-5.753	-5.615
p-value	0.00	0.00	0.00	0.00	0.00	0.00
AR(2)	0.035	0.147	0.569	-0.341	-0.0764	1.562
p-value	0.97	0.88	0.57	0.73	0.93	0.12
Sargan Chi2	358.2	317.9	423.7	227.2	237.1	254.6
p-value	0.974	0.917	0.482	0.613	0.45	0.82

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

Notes: Robust standard errors in parentheses. All equations include time and industry dummies.

GMM Instruments. Differenced equation: t-2, t-3 for Employment, Productivity, ROA, Normative and Actual Pay. Levels equation: t-1, t-2 for Employment, Productivity, ROA, Normative and Actual Pay.

effect is however observed in relation to the size of ownership concentration: a higher concentration of ownership does not reduce the average increase in the executive pay, nor it influences the speed of adjustment towards the executives' reference value. This may be again due to the generally low level of ownership concentration in Slovenian firms and the different impact of various types of main owners on firm governance and the executive pay. This is certainly an issue that needs to be explored further. All the stated conclusions are mostly confirmed in the specifications 3 and 6, where we account for the possible sample selection bias. The negative and significant sign of the Mills ratio suggest that the poorly performing executives (with a higher probability of replacement) receive on average lower salaries. The impact of other, manager-specific variables (e.g. age, education) is not significant. This, in our view, reflects the weakness of the managerial labor market in a post-transition economy, such as Slovenia.

7 Summary and concluding remarks

The increasing levels of executive compensation and the disappointing evidence on the optimality of compensation contracts cast serious doubts on the efficiency of compensation schemes in motivating managerial effort in the US and Europe. Despite the alternative explanations on what may motivate people's behavior, a number of theoretical and empirical evidence shows that our actions can be partly explained by the desire to reach some 'reference' income, which we consider as a 'fair' compensation for our effort. This paper describes the example of a new European country, where the institutional changes induced a significant re-distribution of power away from the firm managers to the newly arising owners. In order to preserve their share in the corporate rents, the managers joined their forces and self-determined the levels of a 'fair' remuneration of their work. This 'fair' or normative wage artificially introduced a new reference value for executive income, which was well above the current levels of the executive pay. Not only. The way it was defined opened few options through which the executives could actually influence their own salaries (i.e. by increasing the size of their firms or by raising the average level of employee wages). In spite of the specifics in the introduction of the new reference value, this new reference point significantly influenced the subsequent dynamics in

(results not reported). The latter can be partly due to the fact that a large number of minority shareholders and relatively dispersed ownership characterises both, public and private stock corporations.

the executive salaries. The observed adjustments provide new and robust evidence on the validity of the predictions of the behavioral theorists regarding the importance of reference values for individuals' behavior. In addition, our results imply that these adjustments are partially based on the increases of the average employee wages, which are not associated with improvements in the labor productivity. The executive salaries also tend to increase more in the firms with stronger managers. These results and the facts surrounding the introduction of the new reference value for the executive compensation provide a country-example in support to the managerial power theory of executive pay.

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