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Henrik Cronqvist, The Ohio State University, Department of Finance
Fredrik Heyman, Research Institute of Industrial Economics
Mattias Nilsson, University of Colorado at Boulder, Department of Finance
Helena Svaleryd, Research Institute of Industrial Economics
Jonas Vlachos, Stockholm University, Department of Economics

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Do Entrenched Managers Pay Their Workers More?*

Henrik Cronqvist, Fredrik Heyman, Mattias Nilsson, Helena Svaleryd, and Jonas Vlachos**

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Abstract

Analyzing a large panel that matches public firms with worker-level data, we find that managerial entrenchment affects workers' pay. CEOs with more control pay their workers more, but financial incentives through ownership of cash flow rights mitigate such behavior. These findings do not seem to be driven by productivity differences, and are not affected by a series of robustness tests. Moreover, we find that entrenched CEOs pay more to (i) workers associated with aggressive unions; (ii) workers closer to the CEO in the corporate hierarchy, such as CFOs, division vice-presidents and other top-executives; and (iii) workers geographically closer to the corporate headquarters. This evidence is consistent with entrenched CEOs paying higher wages to enjoy non-pecuniary private benefits such as lower effort wage bargaining and improved social relations with certain workers. More generally, our results show that managerial ownership and corporate governance can play an important role for labor market outcomes.

Keywords: Corporate governance; agency problems; private benefits; matched employer-employee data; wages

JEL classification: G32; G34; J31

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** The Ohio State University; Research Institute of Industrial Economics; Research Institute of Industrial Economics; University of Colorado at Boulder; and Stockholm University, respectively. Address correspondence to Henrik Cronqvist, The Ohio State University, Fisher College of Business, Department of Finance, 840 Fisher Hall, 2100 Neil Avenue, Columbus, OH 43210, or e-mail at henrik.cronqvist@fisher.osu.edu.

I. Introduction

The separation of ownership and control between shareholders and managers in public corporations can play an important role in determining the level of pay to a firm's manager (whom we will interchangeably refer to as the CEO), but also the pay to the firm's workers. There is ample empirical evidence that entrenched CEOs partly set their *own* pay.¹ However, there are several reasons to suggest that the separation of ownership and control can also have an effect on the pay of a firm's *other* employees.

Thaler (1989) was among the first to explicitly recognize that “an agency model in which managers have a taste for both profits and highly paid employees” (p. 187) may explain workers' pay. The model of the world we have in mind in this paper is in the same spirit. We argue that a CEO compares his *private* benefits from the set of possible wage policies, and selects the one that is in his own best interest, although it may not necessarily be in the best interest of the firm's value-maximizing shareholders.

Several types of private benefits to CEOs can arise from paying workers more (see, e.g., Jensen and Meckling (1976)). For example, higher wages can make relationships with the CEO's own co-workers, such as division vice-presidents and other top-executives, more pleasant, and higher compensation may also produce more loyalty. Moreover, higher pay can also create friendlier labor relations, in particular when CEOs face aggressive and conflict-inclined workers' unions. While most CEOs probably want to enjoy these labor-market-related private benefits, we hypothesize that only those who are sufficiently entrenched or who lack financial incentives to keep down the wage bill will actually be able to enjoy such benefits.

¹ Holderness and Sheehan (1988) show that executives owning majority blocks receive larger salaries than executives in similar firms where shareholdings are more dispersed. Core, Holthausen, and Larcker (1999) present evidence consistent with CEOs at firms with greater agency problems between shareholders and managers receiving higher pay. Bertrand and Mullainathan (2000, 2001) report evidence consistent with a “skimming model” in which CEOs working for poorly governed firms are able to pay themselves higher wages.

Data availability is an obstacle to any study of the effects of managerial entrenchment on workers' pay.² In this paper, we overcome this obstacle by combining several databases with detailed information on firms, subsidiaries, and workers in Sweden. Data on CEOs' control and incentives -- measured by their ownership of votes and cash flow rights -- come from the Swedish Securities Register Center, which keeps a register of all shareholders of Swedish public firms. Data on workers' pay and other worker and subsidiary characteristics are from Statistics Sweden's databases. Matching these databases results in a large employer-employee panel of close to two million firm-subsidiary-worker-year observations, which enables us to test theoretical predictions regarding managerial entrenchment and workers' pay.

We find that managerial entrenchment affects workers' pay. CEOs with more control pay their workers more, but financial incentives through ownership of more cash flow rights mitigate such behavior. These findings do not seem to be driven by productivity differences across workers, subsidiaries, or firms, and are unaffected by a series of robustness tests. We also perform further tests to analyze if these effects reflect the hypothesized private benefits of a high wage policy. The benefits to a CEO of friendlier employee relations should be larger for workers that the CEO interacts with frequently, such as employees organizationally or geographically closer to the CEO. Consistent with these hypotheses, we find that the effects of CEO control and financial incentives are significantly larger for wages of the firm's top-executives (CFOs, COOs, division vice presidents, etc.) than for other employees, and that the effects are significantly stronger for workers located in the same municipality as the CEO. We also explicitly test whether the high wage policy associated with entrenched CEOs could partly

² Consider for example wage data for U.S. firms. Compustat only reports *firm-level* wage data (Item #42; "Labor and related expenses") for about 18% of all available firm-year observations during the period 1995-2005. Most importantly, an analysis of these data suggests that companies reporting wages are not a random sample, with large, regulated, and financial firms being vastly over-represented.

reflect benefits from lower effort wage bargaining. We find that the effect of CEO control and financial incentives are stronger for blue-collar workers organized by more conflict-inclined unions, which is consistent with entrenched CEOs exerting less effort in the wage bargaining compared to other CEOs. Overall, our evidence is consistent with an agency model in which managers have a taste for both profits and highly paid employees, as suggested by Jensen and Meckling (1976) and Thaler (1989), and implies that corporate governance can be of importance for labor market outcomes such as workers' pay.

While there exists a large literature on managerial entrenchment and executive compensation, we are aware of only two other studies that examine CEO entrenchment and other workers' pay, Bertrand and Mullainathan (1999, 2003), or BM below. In these studies, BM show using firm- and plant-level data in the U.S. that there was a significantly larger increase in the wage bill for firms incorporated in states that passed antitakeover laws in the 1980s than for a control group, which is interpreted as evidence that poorly-governed CEOs want to “enjoy the quiet life” through lower-effort wage bargaining. Our paper complements and expands on BM's evidence along several important dimensions.

Our study is different from BM's in that our approach to measuring managerial entrenchment comes from examining the actual control and financial incentives that each CEO individually has through his ownership in the firm. As a result, we are able to show that managerial entrenchment matter for workers' pay even when all studied firms are subject to the same legal environment. CEO ownership has frequently been used in prior studies on corporate valuation and financial policies to measure CEOs' entrenchment and financial incentives. Our

evidence that CEO ownership is an important determinant of employees' compensation is a new and important contribution to the finance literature.³

In addition, our matched employer-employee panel data set allows us to expand on BM's work in several different directions. With our detailed data, we are able to control for sorting of workers across firms based on important worker characteristics, such as, e.g., their education or experience. Most importantly, our worker-level data allow us to examine which workers benefit the most from the higher wages in firms with an entrenched CEO. Thus, our paper presents new evidence on the important question of *why* entrenched managers want to pay their workers more. Our evidence shows that entrenched managers not only want to enjoy the quiet life by paying more when facing more aggressive workers and unions, but they also seem to reward, or buy loyalty from, workers close to themselves in the corporate hierarchy or workers who are otherwise located geographically close to the CEO. Thus, our paper is an important contribution to the small, existing literature on managerial entrenchment and workers' pay by showing that, in addition to shirking, entrenched CEOs want to pay higher compensation to employees to extract private rents in the form of friendlier and more pleasant relationships with top-executives and other employees that they are likely to interact with.

Our work is also of importance for the many papers in the finance literature with arguments that rely on the existence of private benefits of control to a manager. While it has previously been argued that benefits from social relationships with employees are an important form of non-pecuniary private benefits for corporate managers (e.g., Jensen and Meckling (1976)), our paper is one of the first to provide systematic empirical evidence on the existence of such benefits and on the economic importance of such benefits for CEO behavior. This finding is

³ Krueger (1991) finds that company-owned fast-food stores pay higher wages than franchises do. He suggests an efficiency wage explanation for this result, but since the separation of ownership and control is also more severe in company-owned stores, the results may also support an agency explanation.

corroborated in a recent study by Landier, Nair, and Wulf (2007). They do not study data on workers' pay, but show that firms in the U.S. are less likely to lay off workers located geographically closer to corporate headquarters. In a more detailed analysis of this result they find evidence directly suggesting that part of this behavior reflects private benefits to CEOs that come from interacting with workers and communities close to the corporate headquarters.

The paper is organized as follows. Section II discusses theoretical arguments for private benefits to CEOs that arise from higher workers' pay. Section III provides an institutional background. Section IV describes the construction of our matched employer-employee panel data set and presents summary statistics. Section V reports results on the relation between managerial entrenchment and workers' pay. Section VI reports evidence on the economic mechanisms that explain why entrenched managers pay their workers more. Section VII concludes.

II. Agency Theory, Managerial Entrenchment, and Workers' Pay

Jensen and Meckling (1976) discuss the importance of labor-market-related private benefits of control for corporate managers. More specifically, they argue that managers' non-pecuniary private benefits may include "the attractiveness of the secretarial staff, the level of employee discipline, ..., personal relations ('love', 'respect', etc.) with employees" (p. 312). For example, the CEO of a public firm may value, more than the firm's shareholders do, worker loyalty and better manager-employee relationships at or outside of work, in particular with the CEO's own co-workers, such as other executives, or employees among the CEO's staff or those employed at the corporate headquarters. One way for a CEO to improve employee relations and secure loyalty is to offer higher wages. Moreover, while the CEO himself bears the full costs of putting effort into wage bargaining with aggressive and conflict-inclined unions and their

workers, most of the cash flow gains from a lower total wage bill goes to the firm's shareholders, not the manager, unless the manager owns a sufficiently large fraction of the firm's cash flow rights. Based on these arguments, we hypothesize that a firm's wage policy is subject to the agency problem between managers and outside shareholders.

Although we believe most managers, all else equal, would like to enjoy the private benefits described above, they will in reality differ in their ability and incentives to actually extract them. That is, more entrenched managers have a greater ability to increase wages without impunity, and managers' incentives to pay higher wages will be mitigated by their financial stakes, which is a prediction in line with the argument in Jensen and Meckling's original agency model. Thus, under this hypothesis, the empirical prediction is that workers' pay should be positively related to measures of CEO control, but in contrast, inversely related to measures of managers' financial incentives, such as ownership of cash flow rights in the firm. However, CEO ownership does not only confer financial incentives to maximize shareholder value, but also gives the CEO control rights, which in turn can serve as an entrenchment device (see, e.g., Stulz (1988)). As a result, it is an important challenge for our analysis to be able to disentangle effects of control from incentive (alignment-of-interests) effects, as theoretical arguments suggest that these effects can steer a manager's behavior in opposite directions.

Besides using higher wages to "purchase" private benefits such as more enjoyable worker and union relations and lower effort wage bargaining, there exists in the literature another theoretical argument for why managers may want to pay their workers more. Pagano and Volpin (2005) model how higher employee compensation can protect a CEO's job or private benefits of control against raiders. Through generous long-term wage contracts, CEOs can create a management-worker alliance and turn workers and their unions into an antitakeover mechanism;

the inability to renege worker wages transforms the firm into an unattractive takeover target. That is, a high wage policy serves as a substitute for entrenchment through ownership of control rights. Thus, under this alternative hypothesis, we would expect a negative relationship between CEO ownership -- of control rights as well as cash flow rights -- and worker's pay.

III. Institutional Background

In this section, we describe the institutional background and explain why it is suitable for testing theoretical predictions regarding managerial entrenchment and workers' pay.

A. Managerial Entrenchment and Firms' Ownership Structures

Disentangling the effect of managerial entrenchment due to ownership of control rights (votes) from the alignment-of-interests effect due to ownership of cash flow rights is difficult in a one-share-one-vote setting. The task is, however, made somewhat easier in stock markets with frequent deviations from one-share-one-vote. Sweden is one such market. As pointed out by Bebchuk, Kraakman, and Triantis (2000), deviations from one-share-one-vote can stem from three sources: dual-class shares, cross ownership, and stock pyramids. In Sweden, dual-class shares drive the divergence:⁴ some CEOs own both "A shares" with up to 1,000 votes per share and regular common shares ("B shares"), while others hold the same levels of votes and cash flow rights, and still others own no shares. This creates variation in CEOs' control and financial incentives which is suitable for testing hypotheses related to managerial entrenchment and workers' pay.

⁴ In many European countries, such as Italy (e.g., Zingales (1994)), and to some extent also the U.S. (e.g., Gompers, Ishii, and Metrick (2006)), the separation of ownership and control arises through dual-class shares. In contrast, in East Asia the divergence often stems from stock pyramids (e.g., Claessens, Djankov, and Lang (2000)).

B. Institutional Environment and the Value of Higher Workers' Pay as a Private Benefit

CEOs who are entrenched can potentially enjoy many forms of private benefits, of which those related to employee compensation, or more generally the labor market, is only one possibility.⁵ The value of higher workers' pay as a private benefit to a CEO is likely to be dependent on economic conditions and the institutional environment, and would thus be expected to vary across countries, and also within a country as institutions change. For example, in countries where pay is set by centralized bargaining there is little room for wages to be affected by CEOs' private benefits from higher workers' pay.

Also, the value to a CEO of lower-effort wage bargaining and friendlier labor and union relations is likely to be higher when workers and their unions are more aggressive and conflict-inclined. In an international comparison, Swedish labor relations are relatively friendly. For example, in the "IMD World Competitiveness Report 2002," Sweden is ranked fifth out of 49 countries regarding "Productivity of labor relations" based on surveys of corporate executives. Based on International Labour Organization (ILO), the same report ranks Sweden fifth out of 46 countries in terms of the lowest number of working days per employee lost due to labor market conflicts. However, as we will discuss in more detail in section VII, there is important heterogeneity among different unions in Sweden so that some are much more aggressive and conflict-inclined than others.

While we want to recognize that the private benefits to a CEO of higher workers' pay may be more or less valuable depending on the institutional environment, based on the above discussion there is no reason for us to believe that such benefits would be unique in any way to the Swedish market for which we have data in this paper.

⁵ See Dyck and Zingales (2004) for an international comparison of private benefits.

C. Labor Market Structure

Like in many other European countries, centralized binding collective agreements between employer associations and unions were part of the wage-setting process in Sweden after World War II.⁶ However, a regime shift in labor relations took place in 1990 when the Swedish Employers' Confederation decided to no longer participate in centralized wage negotiations. This decision came after wages in the late 1980s had started to drift away from centralized agreements. During the period we study, the fraction with firm- and firm/industry-level negotiations averages 71-85% (96-99%) among blue-collar (white-collar) workers, meaning that wages are largely determined at the firm level post-1990.⁷ Most importantly, the 1990 regime shift provides exogenous variation in CEOs' ability to increase workers' pay, which we will exploit below in our tests.

IV. Data

A. Matched Employer-Employee Panel Data Set

We combine data on public firms, their subsidiaries, and workers into a large matched employer-employee data set.⁸ The Appendix explains the structure of the data set. Data on workers and subsidiaries come from Statistics Sweden's databases, compiled from government-registers such as the financial statistics (FS), the regional labor market statistics (RAMS) and the wage statistics (LS). Each worker is linked to the subsidiary where he/she works through a *personnummer* (corresponding to U.S. Social Security Numbers). Each year, the data set

⁶ Also like in many other European countries, the degree of unionization in Sweden is high: 84.7% (79.7%) of blue-collar (white-collar) workers were unionized, according to survey evidence by LO (2000).

⁷ Iversen (1998) constructs an index of centralization of wage negotiations. Prior to 1990, Sweden was oftentimes in the "centralized" category, but after 1990, Sweden is classified as "intermediary centralized" together with many other countries, such as Austria, Belgium, Denmark, Finland, Germany, the Netherlands, and Norway.

⁸ In Sweden, these subsidiaries (*dotterbolag*) are legal entities which make up a firm. A worker is employed in a subsidiary which, in turn, belongs to a firm. In practice, a subsidiary is a business unit or division. Thus, our data set allows us to control for economic conditions specific to each of a firm's subsidiaries.

contains a random sample of about 50% of the workers between the ages of 18 and 65. Each subsidiary is linked to the public firm to which it belongs via an *organisationsnummer* (corresponding to U.S. Employer Identification Numbers). Data are available for 1995-2002, so an observation in our data set is a firm-subsidiary-worker-year. Because misreporting is prosecuted and these data have been subjected to quality controls by statisticians at Statistics Sweden, measurement errors should be rare. We exclude banks and insurance companies as they are subject to special accounting rules and regulations.

The data set contains information on worker characteristics such as compensation, work hours, education, experience, gender, and occupation. The variable *Wage* is defined as the “gross real monthly full-time-equivalent compensation” for an employee. Gross monthly nominal compensation is pre-tax earnings (wage/salary, bonus, overtime, supplementary allowance for unsocial hours and shift work, etc.). Fringe benefits are also included, so it seems unlikely that important employment-related benefits have been excluded from our wage variable. Nominal compensation is deflated by the CPI to get real compensation as of the end of 1995. Data on other firm and subsidiary characteristics come from Statistics Sweden, MM Partners and Findata, the main providers of stock market and accounting data for research purposes in Sweden.

B. Data on CEOs’ Control and Incentives

We define *CEO Control* to be one if the CEO owns more votes than all other 5% blockholders together, and zero otherwise.⁹ This variable captures the theoretical notion of a

⁹ One issue is how to classify “ESOP-like” or employee pension plan ownership. In our sample, there is ESOP-like ownership in only five firms. In two of them, the CEO is in control regardless of whether the ESOP-like shares are included as part of the CEO’s ownership. As a robustness test, we have verified that our results are unaffected if we include the ESOP-like shares with the CEO ownership when defining CEO control.

CEO being either “in control” or “not in control” and is a conservative measure because a CEO with more votes than the remaining 5% blockholders is clearly entrenched because he can out-vote other blockholders (Cronqvist and Nilsson (2005)). This measure takes the firm’s control structure into account rather than arbitrarily defining, say, 20% of the votes as a cutoff for being in control. We define *CEO Incentive* as the CEO’s fraction of the firm’s cash flow rights. This variable is a measure of the CEO’s financial incentives which captures the extent to which the manager bears the full cost of a high-wage policy.¹⁰ The CEO control and incentive variables are based on the firm’s ownership structure at the beginning of the year. As any empirical definition of managerial control is subject to the caveat that it is but one out of many possible proxies, we also perform robustness tests using several alternative control measures.

C. Summary Statistics

Table I summarizes the data by year, industry, and region. Panel A shows that there are 285 firms, 1,335 subsidiaries, and 584,591 workers in our data set. Panel B shows that the most common industries belong to the manufacturing sector. The two most common industries are “Manufacturing of motor vehicles, trailers and semi-trailers” and “Manufacturing of radio, television and communication equipment,” which include large well-known firms such as Scania and Ericsson. Panel C shows that 41.6% of the worker-years are from the Stockholm region.

Table II reports variable definitions and summary statistics for firm (Panel A), subsidiary (Panel B), and worker (Panel C) characteristics. The CEO control and incentive variables and

¹⁰ Starting in the early 1970s, the Swedish Securities Register Center keeps a register of all shareholders of Swedish public firms. Swedish ownership data are therefore very detailed. Since 1985, Sven-Ivan Sundqvist and Anneli Sundin compile raw data for each year in order to create “ownership coalitions,” appropriately accounting for indirect shareholdings through public or private firms, ownership by family members and foundations, and so on. The data set on CEO control and incentives used in this paper was originally hand-collected from Sundqvist and Sundin’s (1995-2002) publications “Owners and Power in Sweden’s Listed Companies” by Cronqvist and Nilsson (2003), whose database has also been used by several other researchers in finance.

the wage variable are of particular interest. 19.5% of the firm-year observations have a CEO with more control rights than all other blockholders together. The mean ownership of votes (cash flow rights) is 12.3% (7.0%). Conditional on being a 5% blockholder, the mean ownership of votes (cash flow rights) is 45.7% (26.1%). Across all measures of control and incentives, we see that the variation is substantial. For example, for *CEO Votes* (*CEO Incentive*), the maximum is 92.0% (78.1%) and the minimum is 0% (0%). Finally, we see that the mean monthly wage is 21,404 kronor (corresponding to an annual average wage of \$38,624), and the standard deviation is 8,653 kronor (as of 12/31/1995). Panel D reports a simple correlation matrix for the wage and CEO ownership variables.

V. Evidence on Managerial Entrenchment and Workers' Pay

A. Model Specification

Our goal is to estimate the wage differential across firms with more and less entrenched managers. We therefore use the following model specification:

$$\begin{aligned} \log Wage_{ijkt} = & \theta Year_t + \gamma Worker_{it} + \delta Subsidiary_{jt} \\ & + \beta_c (CEO Control)_{kt} + \beta_i (CEO Incentive)_{kt} + \varepsilon_{ijkt} \end{aligned} \quad (1)$$

where i indexes workers, j indexes subsidiaries, k indexes firms, and t indexes years. $Wage_{ijkt}$ is a worker's wage as previously defined, $Year_t$ are year fixed effects, $Worker_{it}$ is a vector of worker characteristics, $Subsidiary_{jt}$ is a vector of subsidiary characteristics (including 49 two-digit industry and seven region dummies), $(CEO Control)_{kt}$ and $(CEO Incentive)_{kt}$ measure the variation in the extent of managerial entrenchment across observations, and ε_{ijkt} is an error term.

Our specification controls for fixed differences across industries and regions.¹¹ The year dummies control for aggregate variation. The estimates of the effects of CEO control and incentives, β_C and β_I , are of particular interest in the following analysis. To control for serial and cross-correlation between workers within the same firm, we use White (1980) robust standard errors adjusted for clustering of the observations at the firm level.¹²

B. Evidence on Managerial Entrenchment and Workers' Pay

In Table III, we report evidence on the effects of CEO control and incentives on workers' pay. In column (1), we estimate equation (1), only controlling for industry, region, and year fixed effects. In column (2), we include worker-level controls. Our worker controls follow a standard Mincer (1974) equation and includes education, experience, and experience squared, as proxies for productivity and human capital differences across workers. We also include a gender indicator variable. In column (3), we include a set of subsidiary-level controls. We include proxies for productivity (log of sales per employee), capital intensity (fixed assets, defined as net property, plant, and equipment, per employee), human capital intensity (the proportions of high- and low-skilled workers), and subsidiary size (log of the number of subsidiary-level employees). Finally, in column (4), we include both worker- and subsidiary-level controls.

Before discussing the effects of managerial entrenchment, let us briefly review some of the other determinants of workers' wages. More education and experience are associated with higher pay: those with at least an undergraduate college education are paid approximately 65.5%

¹¹ An alternative specification could include firm fixed effects. However, as managerial ownership only changes slowly over time, such a specification is problematic. See Zhou (2001) for a discussion of the firm fixed effects regressions employed by Himmelberg, Hubbard, and Palia (1999) in a similar setting. However, in later, alternative, specifications we also control for worker fixed effects.

¹² This choice is based on the arguments and simulations reported in Petersen (2007). Our results are somewhat stronger if we estimate coefficients and standard errors using the Fama and MacBeth (1973) procedure.

more than those with at most an elementary school education, and ten years of work experience is associated with about 22% higher pay. Consistent with a gender wage gap, we find that women are paid on average 15% less than men. Higher-paying subsidiaries seem to have higher productivity and capital intensity, and are also more human capital intensive, as is the case in the study by Abowd, Kramarz, and Margolis (1999). The coefficient on our proxy for subsidiary size, the log of the number of employees, is positive, but not statistically significant.

Next, we turn our focus to the effects of managerial control. We find that CEOs with more votes than all other 5% blockholders combined pay higher wages to their firms' workers: the estimated coefficient on *CEO Control* is statistically significant at all levels in columns (1) to (4). The estimated effect is also economically large. For example, the estimate in column (4) implies that a CEO in control pays about 5%, or \$1,900 (as of 12/31/1995), higher average annual wages, all else equal. The table also provides estimates of the effects of managers' financial incentives to keep the wage bill down. Managers who own more cash flow rights in their firms pay lower wages. As for managerial control, the effect is economically large. The estimate in column (4) implies that an increase in *CEO Incentive* by one standard deviation (14.7%) is associated with 2.5% lower wages, all else equal. These results suggest that entrenched managers pay their workers higher wages: workers' pay is positively related to CEO control, but negatively related to CEOs' financial incentives through ownership of cash flow rights in the firm. This evidence is consistent with an agency model in which managers have a taste for both profits and highly paid employees, as suggested by Jensen and Meckling (1976) and Thaler (1989). Because workers' pay is positively correlated with managerial control, our evidence does not seem to support the prediction by Pagano and Volpin (2005) that CEOs who

control a stake lower than that required for control are the ones who use a high-wage policy as an antitakeover mechanism.¹³

C. Robustness Checks

We have performed several robustness checks to address concerns regarding the main result presented above. One concern is the high positive correlation between the *CEO Control* and *CEO Incentive* variables. A benefit of our sample is that we are able to disentangle the entrenchment effect of voting control from the financial incentives of cash flow rights ownership due to the prevalent use of shares with differential voting rights. However, the Spearman correlation coefficient between these variables is 0.87, which raises the issue of a multicollinearity problem. One potential solution to multicollinearity problems is to omit one of the highly correlated variables, but this introduces the risk of model misspecification. If in the true model the control and incentive effects have opposite signs, as suggested by theory, but we omit one of the variables when estimating the model, then the included variable will be biased towards zero as it will in part proxy for the omitted variable's effect on workers' wages.¹⁴ Instead, we carefully examine whether our results exhibit any signs of a multicollinearity problem.

One effect of multicollinearity is inflated standard errors, but since the coefficient estimates on *CEO Control* and *CEO Incentive* variables are statistically significant that is not

¹³ A possibly more precise test of the takeover-entrenchment hypothesis involves identifying firms that are subject to more takeover pressure, in which case a management-labor alliance as protection against a control threat might be most valuable. In additional regressions, we have therefore included an indicator variable, *Takeover Target*, that is one if the firm was subject to a tender offer in year t , and zero otherwise. These data come from the "Stockholm Stock Exchange Fact Books" (1995-2002). However, the evidence of statistically insignificant takeover target variables is inconsistent with the takeover-entrenchment hypothesis. These results are available from the authors upon request.

¹⁴ In fact, if we omit either *CEO Control* or *CEO incentives* from the regression, the other remaining variable becomes insignificant, suggesting an omitted variable bias.

likely to be a problem in our estimations. This conclusion is confirmed when we calculate the variance inflation factors (VIFs) for *CEO Control* and *CEO Incentive*, which we find to be well below the commonly used threshold of 10. Another sign of a multicollinearity problem is that coefficient estimates are sensitive in terms of magnitude and signs to changes in the sample. To test for this, we make a random draw of 75% of the 285 firms in our sample, stratified so that the distribution between firms with and without a CEO in control is the same in the new sample as in the original data set. The baseline regression in column (4) of Table 4 is then run on this smaller sample, and the procedure is repeated 100 times. The results show that the original coefficient estimates are stable to such sample changes: the average coefficient on *CEO Control* (*CEO Incentive*) is 0.049 (-0.165) with an average standard error of 0.018 (0.053). Moreover, we find that the signs of the estimated coefficients never switch in any of these regressions.

To further test that our original coefficient estimates in Table 3 are capturing real underlying correlations with workers' wages, we also perform the following test. First, we calculate the average residual $\log(\text{Wage})$ per firm-year from running the baseline regression in column (4) of Table III, but without the *CEO Control* and *CEO Incentive* variables, and then calculate the partial correlation of *CEO Control* (*CEO Incentive*) with the average residual $\log(\text{Wage})$ holding *CEO Incentive* (*CEO Control*) constant. We find that the partial correlation of *CEO Control* and average residual $\log(\text{Wage})$ is 0.131 (p-value < 0.001) and the partial correlation of *CEO Incentive* and average residual $\log(\text{Wage})$ is -0.099 (p-value = 0.001). Thus, this finding is also consistent with our initial regression results. We conclude that multicollinearity is not likely to be driving our results.

Another potential concern is that our measure of CEO entrenchment, *CEO Control*, is but one out of many possible proxies. Therefore, we have substituted the *CEO Control* variable for

some other measures that have also been used in the literature. In column (1) of Table IV, we report results from using *CEO Excess Votes*, defined as the difference between the CEO's proportion of votes minus the proportion of cash flow rights. This specification has previously been employed by, e.g., Claessens, Djankov, Fan, and Lang (2002) and Villalonga and Amit (2006). In column (2), we use a dummy variable indicating that the CEO has 10% or more *Excess Votes* (as defined above), which is also employed in Durnev and Kim (2005). In column (3), we use the indicator variable *CEO $\geq 20\%$ Votes* to define "practical control" because this measure is most directly comparable to the control cutoff in the work by La Porta, Lopez-de-Silanes, and Shleifer (1999). We see that none of these three alternative measures change our conclusion that more CEO control is associated with higher employee compensation.

Next, in column (4) we run a specification with *CEO Votes* and $(CEO\ Votes)^2$ without including *CEO Incentive*. By dropping *CEO Incentive*, this specification is a way of capturing both the control and alignment-of-interests effects of CEO ownership, albeit in a more indirect and crude way. The reason is that we hypothesize that workers' pay increases in CEO votes up to some point where the CEO has full control, after which votes ownership is only a proxy for the financial incentive effects of the equity stake (fraction of cash flow rights) that is tied to the CEO's ownership of votes. This is what we find: workers' pay is significantly increasing in *CEO Votes*, but at a significantly decreasing rate. The wage effect is maximized around 30% of votes and starts to become negative after around 61% of votes.

Finally, we summarize without directly reporting some other robustness checks that we have performed. First, we find that our results are somewhat stronger if we use three-digit, rather than two-digit, industry fixed effects. Second, we have included fixed effects corresponding to 14 collective bargaining agreement areas as a labor-market-based industry

classification, but the results are similar. Third, we add fixed effects for 26 broad classes of occupations or professions defined by Statistics Sweden, e.g., “engineering work,” to control for sorting of workers that is not captured by observable worker-level characteristics already in the model. Again, our results are similar. Finally, to deal with concerns that we put a lot of weight on firms with many employees and little weight on smaller firms, we estimate the baseline specification without the CEO variables, and then collapse the worker-year residuals by firm-years and estimate the effect of CEO control and incentives in this collapsed data set, but the results are unaffected. As another alternative, we estimate the benchmark regression without the CEO variables, but with firm fixed effects, and then we regress the fixed effects on firm-average CEO control and incentives; again, the results are unaffected.

D. Alternative Explanations: Effects of Firm Characteristics

In this section, we consider the effects of firm-level characteristics that may be related to managerial entrenchment or workers’ pay. Table V reports our results.

D.1. Productivity

Recall that in our baseline specification we include several proxies for productivity, capital intensity, and human capital intensity at the subsidiary level. However, *firm-level* productivity can also affect employee compensation. Entrenched CEOs may provide “stakeholder protection,” thereby providing workers an incentive to make more firm-specific human capital investments (Shleifer and Summers (1988)), which may increase the firm’s profitability, and workers may therefore be paid more because of rent-sharing. In column (1) of the table, we control for firm-level productivity by adding the firm’s *Return on Assets* and *Market-to-Book Ratio*, as they are common proxies for firms’ operating profitability and growth

opportunities. We also control for the log of *Firm Size* and *Growth in Firm Size* as other proxies for productivity differences across firms. Finally, we control for the *Fixed Assets / Total Assets* as capital intense firms tend to be more productive, all else equal. We find that the relation between managerial entrenchment and workers' pay is not driven by firm-level productivity differences.

D.2. Employment Risk

Besides productivity, the other main alternative explanation is that the higher pay is a premium for a higher risk of being (arbitrarily) fired by a powerful and entrenched CEO. We address this explanation by controlling for "employment risk." In column (2), we include *Employment Risk*, defined as the coefficient of variation in the number of employees at the firm level.¹⁵ We find that the relation between managerial entrenchment and workers' pay remains after controlling for employment risk. Thus, it seems unlikely that the higher pay is a premium for a higher risk of being fired by an entrenched CEO.

D.3. Capital Structure

A firm's capital structure may also be related to managerial entrenchment (e.g., Stulz (1988) and Berger, Ofek, and Yermack (1997)). Moreover, debt may be used in bargaining with workers and their unions to keep wages down (e.g., Perotti and Spier (1993), and Matsa (2006)). Therefore, we also control for the proportion of debt in the firm's capital structure. In column (3), we add *Leverage*, defined as total liabilities divided by total assets (book value). Consistent with Hanka (1998), who analyzes firm-level data on workers' wages in the U.S., we find that firms with more debt pay their workers significantly lower wages. This result may arise because

¹⁵ The result is similar if we instead control for the net change in the number of employees at the firm level.

a higher debt level gives the CEO more bargaining power vis-à-vis workers due to the increased risk of default or because more debt constrains managers from diverting free cash flow (in this case through more generous wages), as argued by Jensen (1986). Most importantly, the relation between managerial entrenchment and employee compensation remains after controlling for differences in firms' capital structures.

D.4. Employee Board Representation

Employees can act as a control threat to the CEO when they are represented on the firm's board of directors. In this case, the private benefit to the CEO from a high-wage policy comes from better job protection, i.e., a lower probability of being dismissed by the board, because the CEO has "bribed" the union board representative through more generous compensation contracts to the union's workers. In column (4), we include an indicator variable *Employee Board Representation* that is one if a union member sits on the board, and zero otherwise. These data come from Sundqvist and Sundin's (1995-2002) publications "Directors and Auditors in Sweden's Listed Companies." We find that the relation between managerial entrenchment and workers' pay is not driven by employee board representation.

D.5. Blockholders

We now turn to the effects of blockholders on workers' pay. First, while Jensen and Meckling (1976) argue that managers can derive non-pecuniary private benefits related to higher workers' pay, we do not expect large shareholders that are not CEOs to enjoy such benefits. In column (5), we include an indicator variable, *Non-CEO Controlling Owner*, which takes the value one if a blockholder other than the CEO owns more votes than all other 5% blockholders together, and zero otherwise. We also include *Non-CEO Controlling Owner Incentive*, to

measure such blockholders' financial incentives through cash flow ownership in the firm. We find opposite effects on workers' pay of CEOs and non-CEOs that are in control of a firm.

Second, in column (6) we examine the effects of non-management blockholders' presence in a firm, even if those blockholder are not in control. We distinguish between individual and institutional blockholders. *Non-Management Individual Blockholder* takes the value one if an individual who is not part of management controls more than 5% of the votes, and zero otherwise. *Institutional Blockholder* takes the value one if an institution has more than 5% of the votes, and zero otherwise. This category includes banks, money managers, insurance companies, and so on. We find that both these blockholder categories are associated with lower employee compensation: non-management individual (institutional) blockholders are associated with about 4.6% (3.5%) lower employee compensation. Our evidence on blockholders is consistent with the argument that only managers can enjoy private benefits related to higher workers' pay.¹⁶

D.6. Other Firm Characteristics

In column (7), we examine other firm-level characteristics which theory and previous empirical evidence suggest may be related to CEO entrenchment or wages. First, because Schoar (2002) reports that workers in diversified firms are paid a premium and since entrenched CEOs may engage in more conglomerate-building, we control for *Diversification*. Second, a proxy for a firm's strategic position as leader vs. follower is *Export Intensity* because firms that export a larger percentage might be more likely to be market leaders. A possible proxy for more

¹⁶ This result does not imply that non-management blockholders do not exploit minority shareholders. It merely suggests that non-management blockholders might exploit minority shareholders in ways other than through higher pay to the firm's workers. In fact, non-managerial blockholders may have an incentive to monitor management (e.g., Shleifer and Vishny (1986)) to keep the firm's wage bill down precisely so that more cash flows will be available in the firm for projects which give them valuable private benefits.

vs. less innovative firms is *R&D Intensity* because firms that spend more on R&D are more likely to be innovative producers or service providers.¹⁷ Third, we control for *Wage Dispersion*, because tournament theories (e.g., Lazear and Rosen (1981)) suggest that in firms with entrenched CEOs, the probability of getting the “prize,” i.e., becoming the CEO, is smaller. Thus, the wage dispersion might be smaller in firms with entrenched CEOs, and therefore the average wage may have to be higher as a compensating mechanism. Finally, we control for *CEO Age* because older CEOs may have weaker incentives to put effort into keeping down the firm’s wage bill, while at the same time, older CEOs may be more entrenched as they have accumulated more votes. However, the results in the table suggest that none of these additional firm characteristics can explain the relation between managerial entrenchment and workers’ pay.

E. Evidence on Causality

So far we have shown that entrenched managers pay their workers more, controlling for a series of worker-, subsidiary-, and firm-level characteristics. In this section, we provide evidence on the issue of causality.

E.1. Changes in Managerial Entrenchment and Job Switches

First, we examine changes in workers’ pay following changes in managerial entrenchment and job switches. In practice, we estimate equation (1) with worker fixed effects included. In this model specification, identification of managerial entrenchment effects on workers’ pay comes from (i) within-firm changes in CEOs’ control status and cash flow rights ownership and (ii) workers changing jobs from a firm with one type of CEO control status to

¹⁷ Data on export and R&D intensities have been aggregated from the subsidiary level to the firm level, and are available only for the domestic parts of firms’ operations.

another. Because of the short time period available for analysis (1995-2002), only 10.2% of the firms experience a change in CEO control status, and only 11.1% of the workers switch jobs from one firm to another (with even fewer going from a firm with one CEO control status to another). As can be seen in column (1) of Table VI, the estimated coefficient on *CEO Control* is still positive in the worker fixed effects specification, although it is not significant at conventional levels ($p\text{-value} = 0.175$). The coefficient on *CEO Incentive* is still negative and statistically significant.

We have two concerns with this model specification. First, we do not expect changes in workers' pay to take place immediately following, e.g., the arrival of a CEO with different control status and cash flow rights ownership. In columns (2) to (4), we therefore include the *CEO Control* and *CEO Incentive* variables lagged one, two, and three years, respectively. We find that the effects are statistically significant and become larger in economical terms as the lag is increased. Second, identification comes in part from workers changing jobs. The choice to switch jobs might be endogenously driven by higher pay, and thus overstate the effect of managerial entrenchment on workers' pay. In column (5), we therefore include individual worker-firm fixed effects, i.e., "spell fixed effects," so that the identification comes from only changes in CEOs' control status and cash flow rights ownership. CEO changes can reasonably be assumed exogenous from the perspective of an individual worker. As an alternative, in column (6), we exclude workers switching jobs and run a standard worker fixed effects regression. We find that the estimated coefficients on *CEO Control* and *CEO Incentive* are still significant and economically large. Our interpretation of these results is that managerial

entrenchment affects workers' pay, but the effects emerge over time as a CEO has the opportunity to make his own imprints on a firm's wage policy.¹⁸

E.2. Centralized versus Decentralized Wage Bargaining Regimes

To more directly address the question of causality, we next exploit the shift in wage bargaining regimes described in Section III.B. We predict a stronger relation between managerial entrenchment and workers' wages under a decentralized regime than under a centralized regime, because entrenched CEOs then have the ability to pay their workers higher wages if they so choose.

This regime shift provides exogenous variation in CEOs' ability to increase workers' pay. In column (1) of Table VII, we present the relation between *CEO Control* and *CEO Incentive*, respectively, and workers' pay in 1990, when wages were largely determined by centralized negotiations. We do not have worker-level data for 1990, thereby restricting our analysis to the subsidiary level. To provide a direct comparison with the results for the 1995-2002 period with decentralized wage bargaining, we report results from collapsing our data set at the subsidiary level and re-estimating equation (1) without worker-level controls in column (2). We find different results for the two bargaining regimes: there is no relation between managerial entrenchment and workers' pay under the centralized regime, but a significant relation under the decentralized regime. This analysis provides more direct evidence that entrenched managers pay their workers more when they are able to.

¹⁸ In the rest of the paper, we therefore focus on CEOs who have been in a firm at least three years.

VI. Why Do Entrenched Managers Pay Their Workers More?

In this section, the objective is to explore our detailed data set to report evidence on the economic mechanisms that may explain why entrenched managers pay their workers more. Our approach is to analyze whether CEOs pay the most to those subsets of workers that we would a priori expect to be associated with the largest private benefits. In particular, we examine the extent to which workers' pay depends on organizational and geographic proximity of an employee to an entrenched CEO, and also whether entrenched CEOs behave differently when they face more aggressive and conflict-inclined unions.

A. Organizational Proximity

We hypothesize that the private benefits to a CEO of more enjoyable employee relations and loyalty is higher for those with whom the CEO interacts more. For example, a CEO may value, more than shareholders do, better manager-employee relationships, in particular with his own co-workers. Unfortunately, we cannot explicitly measure CEO-worker interactions in our data set. However, CEOs generally interact more with employees who are closer to them in the organizational hierarchy, such as other executives of the firm (e.g., CFOs and division or business unit vice-presidents). Our data set is detailed enough to allow us to identify such top-executives, and we can therefore ask whether executives close to the CEO in the firm's organizational chart are paid more by entrenched CEOs.

In column (1) of the Table VIII, we find that organizational proximity interacts with managerial entrenchment in an important way. The relations between *CEO Control* and *CEO Incentive*, respectively, and workers' pay are significantly stronger for top-executives such as, e.g., division vice-presidents than for other workers. The effect is economically meaningful as CEOs in control pay their executives on average about 18% more, all else equal. As can be seen,

the financial incentive effect from cash flow rights ownership is also strong when it comes to top-executives' pay. We interpret this as evidence that entrenched CEOs get particularly large private benefits from paying more to those executives who are the closest to themselves in the corporate hierarchy, because the higher pay provides more enjoyable work interactions and may also produce valuable loyalty.

B. Geographic Proximity

We also conjecture that the private benefits to a CEO of more enjoyable employee relationships are higher for employees who work at the corporate headquarters or otherwise geographically close to the CEO. The idea is that CEOs interact more with employees, even rank-and-file workers, who are located close by. Recent research by Landier, Nair, and Wulf (2007) supports the notion that CEOs would be generally “friendlier” towards employees who are located close to the corporate headquarters. While they do not study wages, they document that firms are less likely to dismiss employees or divest operations that are close to a firm's headquarters. Some of their evidence suggests that social considerations matter for this behavior. Moreover, they also find evidence suggesting that such geographical “favoritism” may reflect an agency problem rather than being a shareholder value maximizing policy.

We are able to measure an employee's geographic proximity to the CEO by considering whether the employee works in the same municipality as the corporate headquarters. As there are a total of 290 municipalities in our sample, these areas are relatively small in size. We can therefore ask whether a worker's geographic proximity to the CEO and the headquarters interacts with the managerial entrenchment effect on workers' pay.

In column (2) of Table VIII, we find that the relation between managerial entrenchment and workers' pay is significantly stronger for employees among the CEO's staff, or who

otherwise work geographically close to the CEO. The economic size of the estimated effects are large. CEOs in control pay about 6% more to workers close to the corporate headquarters, and the financial incentive effect from cash flow rights ownership is also strong. Overall, these results suggest that friendlier relations with workers located closer to the corporate headquarters is another important private benefit which can explain why entrenched managers pay their workers more.

C. Union Aggressiveness

We also hypothesize that the value of the benefit to a CEO of lower-effort wage bargaining is higher when workers' unions are more aggressive and conflict-inclined because this is when it is the most costly for the manager to exert effort to pursue a policy of a lower total wage bill. To measure the aggressiveness in the cross-section of unions, we match our data with a unique hand-collected data set on labor market conflicts (defined as blockades/ boycotts, strikes, wildcat strikes, lockouts, overtime bans, slowdowns) in Sweden, originally compiled from the archives of the National Conciliation Board and the National Mediation Office by Lindberg (2006). Based on unions' conflict patterns, Lindberg classifies six unions as "highly conflict-inclined." These unions are The Swedish Electricians Union, The Swedish Painters' Union, The Swedish Building Workers' Union, The Swedish Transportation Workers' Union, The Swedish Dock Workers' Union, and the Syndicalists (which organize workers in different industries, but the most important groups are transportation and postal workers). Of the 221 conflicts during the period 1993-2002 that could be attributed to a specific trade union, these unions were involved in 122 (55 percent).

As worker-level data on union membership is not available, and since most industries employ workers that belong to different unions, our mapping of these high conflict unions into

industries will necessarily be noisy. However, in some industries the vast majority of blue-collar workers are organized by the previously mentioned aggressive unions. These are: (i) Construction (SNI code 45), where most blue-collar workers belong to The Swedish Electricians Union, The Swedish Painters' Union, or The Swedish Building Workers' Union, and (ii) Transportation (SNI codes 60-63), where most belong to The Swedish Transportation Workers' Union, The Swedish Dock Workers' Union, or the Syndicalists.¹⁹ All of the six highly conflict-inclined unions organize only blue-collar workers. Though our mapping might be somewhat noisy, we believe that we have been able to identify the industries with the most aggressive and conflict-inclined unions. With these data on the cross-section of union aggressiveness, we want to ask whether entrenched CEOs pay more to their workers when facing more aggressive unions.

In column (3) of Table VIII, we are mainly interested in the triple interaction terms between *CEO Control* and *CEO Incentive* on the one hand, and *Aggressive Union* and *Blue-Collar Worker* on the other. As can be seen, the results are in line with our a priori predictions. Blue-collar workers are paid more in industries with aggressive unions. However, most importantly, we find that this effect is particularly strong in firms with entrenched CEOs. We interpret this as evidence that entrenched CEOs behave differently when they face more aggressive and conflict-inclined unions. More specifically, our findings suggest that entrenched CEOs derive private benefits from paying more to blue-collar workers organized by more aggressive unions because this is when it is most costly for the manager to exert effort to pursue a policy of a lower total wage bill.²⁰

¹⁹ We have also compared this classification to data from the ILO, and find that the number of days lost due to labor market conflicts divided by the total number of workers is indeed highest for the following industries: "Public Administration and Defence" (an industry not represented in our sample of public firms), "Construction," and "Transport, Storage and Communication."

²⁰ Thaler (1989) noted that "the idea that managers would reduce profits to enrich their employees, especially the blue-collar workers far removed from the manager's milieu, is an enigma" (p. 187). The above evidence suggests

VII. Conclusions

Using a large panel data set which matches public firms with detailed data on their workers, we find that CEOs with more control pay their workers more. Because financial incentives through cash flow rights ownership by a CEO are negatively related to employee compensation, we interpret the higher workers' pay as evidence of agency problems from the separation of ownership and control: if it were optimal for managers with more control to pay higher wages, they would pay even higher wages when they have more financial incentives to do so through more cash flow rights in their firms. Furthermore, we show that entrenched CEOs pay more to workers associated with aggressive unions, and to the workers who are closest to them in the corporate hierarchy, such as division vice presidents, or who work geographically closer to the corporate headquarters. These findings are consistent with CEOs paying higher wages to enjoy non-pecuniary private benefits from lower-effort wage bargaining as well as improved social relations with their co-workers.

Our evidence that entrenched CEOs prefer to pay higher wages rather than delivering larger residual cash flows to shareholders suggests that Bertrand and Mullainathan's (2000, 2001) notion of a "skimming model" in the pay-setting process may go beyond the CEO's own pay. Entrenched and otherwise poorly governed CEOs who have captured the pay-setting process seem to give higher pay also to their firm's employees. The effects of managerial entrenchment on compensation in public firms may therefore be significantly larger in dollar terms than previously thought, because the effects disseminate down and throughout the corporation.

that private benefits to the CEO from friendlier union relations is a possible economic mechanism behind the result that entrenched managers pay their blue-collar workers more.

The evidence of this paper suggests that more research should be devoted to empirical and theoretical analysis of the link between corporate governance and labor market outcomes. For example, how does the institutional environment affect the value of private benefits to a CEO from higher workers' pay? Are the effects of managerial entrenchment on workers' pay stronger in some countries than in others, e.g., where unions are more aggressive, or where the private benefits to CEOs of more loyalty or enjoyable worker relationships are larger? Moreover, except for the recent work by Pagano and Volpin (2005), there is little theoretical modeling of the link between corporate governance and labor market outcomes, such as workers' pay and wage dispersion. These are important questions left for future research.

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Table I
The Matched Employer-Employee Data Set

The sample is a matched employer-employee panel data set collected from public firms in Sweden over the period 1995-2002. Section IV describes the sample in detail. Panel A reports the number of workers, subsidiaries, and firms by year. Panel B reports the distribution of workers across the ten most common industries. There are 49 industries, based on the European Union's two-digit standard classification of economic activities, *Nomenclature des Activités Économiques dans la Communauté Européenne* (NACE). Panel C reports the distribution of workers across regions, based on Statistics Sweden's classifications.

Panel A: Number of Workers, Subsidiaries, and Firms by Year			
Year	Workers	Subsidiaries	Firms
1995	215,816	632	109
1996	257,001	412	103
1997	278,226	441	122
1998	253,441	441	136
1999	233,755	414	144
2000	252,874	450	150
2001	229,145	413	148
2002	220,310	386	153
Total year-observations	1,940,568	3,589	1,065
Unique observations	584,591	1,335	285

Panel B: Distribution of Workers across the Most Common Industries	
Industry	%
Manufacturing of motor vehicles, trailers and semi-trailers	12.9
Manufacturing of radio, television and communication equipment	11.3
Construction	11.1
Manufacturing of pulp, paper and paper products	8.4
Manufacturing of machinery and non-electric equipment	8.2
Computer services (including software production and other related activities)	4.8
Manufacturing of basic metals	4.6
Other business services (e.g., legal, accounting, consulting, advertising)	4.5
Manufacturing of other transport equipment	3.6
Manufacturing of fabricated metal products, except machinery and equipment	2.5

Panel C: Distribution of Workers across Regions		
Region	Definition	%
Stockholm	Metropolitan Stockholm and suburbs	41.6
Other metropolitan areas	Other metropolitan areas than Stockholm	23.7
Major cities	Municipality population $\geq 90,000$ within a 30 km radius from the center	21.4
Mid-sized cities	$90,000 > \text{Municipality population} \geq 27,000$ within a 30 km radius from the center, and population $\geq 300,000$ within a 100 km radius	9.4
Smaller cities	$90,000 > \text{Municipality population} \geq 27,000$ within a 30 km radius from the center, and population $< 300,000$ within a 100 km radius	3.0
Rural districts	Municipality population $< 27,000$ within a 30 km radius from the center	0.9

Table II
Summary Statistics

The sample is a matched employer-employee panel data set collected from public firms in Sweden over the period 1995-2002. Section IV describes the sample in detail. The table reports variable definitions and summary statistics for firm (Panel A), subsidiary (Panel B), and worker (Panel C) characteristics. Panel D displays Spearman's (Pearson's) correlation coefficients below (above) the diagonal for the firm-year average of wage and the CEO ownership variables.

Panel A: Firm Characteristics (N=1,065)			Mean	St. dev.
<u>CEO control and incentives</u>				
CEO Control	1 if the CEO owns more of the firm's votes than all other 5% blockholders together, 0 otherwise		0.195	0.397
CEO Incentive	CEO's fraction of the firm's cash flow rights		0.070	0.147
CEO Votes	CEO's fraction of the firm's votes		0.123	0.241
CEO Excess Votes	CEO Votes – CEO Incentive		0.053	0.115
CEO Excess Votes $\geq 10\%$	1 if CEO Excess Votes $\geq 10\%$ of the votes, 0 otherwise		0.184	0.388
CEO $\geq 20\%$ Votes	1 if the CEO owns $\geq 20\%$ of the votes, 0 otherwise		0.208	0.406
<u>Other firm-level characteristics</u>				
Return on Assets	Earnings before interest, taxes, depreciation, and amortization / Total assets (book value)		0.096	0.163
Market-to-Book Ratio	(Market value of equity + Book value of debt) / (Book value of equity + Book value of debt)		1.88	2.05
Firm Size	Total gross sales (in billion kronor)		10.4	27.1
Growth in Firm Size	$\text{Log}(\text{Firm Size}_t / \text{Firm Size}_{t-1})$		0.121	0.469
Fixed Assets / Total Assets	Net property, plant, and equipment / Total assets		0.257	0.231
Employment Risk	Coefficient of variation in the number of employees at the firm level		0.188	0.230
Leverage	Total liabilities / Total assets (book value)		0.561	0.171
Employee Board Representation	1 if there is at least one union member on the board, 0 otherwise		0.623	0.484
Diversification	Number of two-digit industries in which the firm is operating		3.41	3.84
Export Intensity	Export sales / Sales		0.253	0.307
R&D Intensity	R&D expenses / Sales		0.759	16.7
Wage Dispersion	Coefficient of variation / 100 of monthly worker wages within the firm		0.080	0.037
CEO Age (N=1,055)	CEO's age (in years)		50.2	6.72
Non-Management Individual Blockholder	1 if an individual other than management owns $\geq 5\%$ of the votes, 0 otherwise		0.583	0.493
Institutional Blockholder	1 if an institution owns $\geq 5\%$ of the votes, 0 otherwise		0.331	0.471

Panel B: Subsidiary Characteristics (N=3,589)			
		Mean	St. dev.
Log (Sales / Employee)	Total gross sales / Employee (in million kronor)	7.31	0.790
Fixed Assets / Employee	Net property, plant, and equipment / Employees (in million kronor)	0.998	5.29
Employees	Average number of employees during the year	609	1,471
Proportion High-Skilled Workers	Fraction of workers with at least undergraduate college education	0.275	0.244
Proportion Low-Skilled Workers	Fraction of workers with at most 9 years of compulsory schooling	0.223	0.150

Panel C: Worker Characteristics (N=1,940,568)			
		Mean	St. dev.
Wage	Gross real monthly full-time-equivalent compensation, where monthly compensation is the sum of monthly net earnings, i.e., wage/salary, bonus, overtime, supplementary allowance for unsocial hours and shift work, and payroll taxes (in 1995 kronor).	21,404	8,653
Female	1 if the worker's gender is female, 0 otherwise	0.248	0.432
Education 1	1 if highest level of education is elementary school (<9 years), 0 otherwise	0.093	0.291
Education 2	1 if highest level of education is compulsory school (9 years), 0 otherwise	0.115	0.319
Education 3	1 if highest level of education is 2 years of upper secondary school, 0 otherwise	0.324	0.468
Education 4	1 if highest level of education is 3 years of upper secondary school, 0 otherwise	0.296	0.457
Education 5	1 if highest level of education is 4 years of upper secondary school, 0 otherwise	0.041	0.198
Education 6	1 if highest level of education is undergraduate or graduate college education, 0 otherwise	0.124	0.329
Education 7	1 if highest level of education is doctoral degree, 0 otherwise	0.007	0.084
Experience	Years since graduation from highest level of education	21.8	12.3

Panel D: Spearman (below diagonal) and Pearson (above diagonal) Correlation Coefficients (N=1,065)							
	Wage	CEO Control	CEO Incentive	CEO Votes	CEO Excess Votes	CEO Excess Votes ≥10%	CEO ≥20% Votes
Wage	-	0.11	0.05	0.05	0.03	0.04	0.10
CEO Control	0.05	-	0.91	0.84	0.84	0.85	0.92
CEO Incentive	0.05	0.87	-	0.94	0.89	0.90	0.93
CEO Votes	0.06	0.87	1.00	-	0.68	0.75	0.85
CEO Excess Votes	0.00	0.82	0.89	0.85	-	0.94	0.86
CEO Excess Votes ≥10%.	0.01	0.85	0.85	0.81	0.94	-	0.90
CEO ≥20% Votes	0.05	0.92	0.90	0.89	0.86	0.90	-

Table III
Evidence on Managerial Entrenchment and Workers' Pay

The table reports regressions of workers' pay on CEO ownership variables, controlling for worker and subsidiary characteristics, and fixed effects for industries, regions and years. The sample is a matched employer-employee panel data set collected from public firms in Sweden over the period 1995-2002. Section IV describes the sample in detail. The dependent variable is $\log(Wage)$, where $Wage$ is the gross real monthly full-time-equivalent compensation (in 1995 kronor). *CEO Control* is 1 if the CEO owns more of the firm's votes than all other 5% blockholders together, 0 otherwise. *CEO Incentive* is the CEO's fraction of the firm's cash flow rights. *Education 2* to *Education 7* are dummy variables for levels of education. *Experience* is years since graduation from highest level of education. *Female* is 1 if the worker's gender is female, 0 otherwise. $\log(Sales / Employee)$ is total gross sales / employee (in million kronor). *Fixed Assets / Employee* is net property, plant, and equipment / employees (in million kronor). *Employees* is the average number of employees during the year. *Proportion High-Skilled Workers* is the fraction of workers with at least undergraduate college education. *Proportion Low-Skilled Workers* is the fraction of workers with at most 9 years of compulsory schooling. Industry fixed effects are based on the two-digit NACE classification. Region fixed effects are based on Statistics Sweden's classification. We compute White's (1980) robust standard errors adjusted for clustering of the observations at the firm level. t-statistics are reported in parentheses. ***, **, * denote that the value is significantly different from zero at the 1%, 5%, and 10% levels, respectively.

Table III – continued

	(1)	(2)	(3)	(4)
CEO Control	0.070 (3.41)***	0.056 (3.80)***	0.056 (3.22)***	0.049 (4.07)***
CEO Incentive	-0.290 (4.54)***	-0.204 (4.65)***	-0.212 (4.41)***	-0.169 (4.70)***
<u>Worker Controls</u>				
Education 2		0.035 (8.43)***		0.034 (8.47)***
Education 3		0.076 (13.69)***		0.071 (13.21)***
Education 4		0.196 (15.75)***		0.186 (15.01)***
Education 5		0.254 (24.49)***		0.239 (22.21)***
Education 6		0.504 (36.54)***		0.483 (30.73)***
Education 7		0.713 (52.94)***		0.689 (46.87)***
Experience		0.026 (11.90)***		0.025 (11.46)***
Experience ² / 100		-0.040 (10.48)***		-0.040 (10.15)***
Female		-0.138 (21.90)***		-0.138 (22.43)***
<u>Subsidiary Controls</u>				
Log (Sales / Employee)			0.035 (6.95)***	0.032 (6.84)***
Fixed Assets / Employee			0.002 (1.75)*	0.002 (2.33)**
Proportion High-Skilled Workers			0.476 (16.80)***	0.130 (3.99)***
Proportion Low-Skilled Workers			-0.132 (1.97)**	-0.157 (3.00)***
Log (Employees)			-0.002 (0.59)	0.001 (0.37)
Industry, region, and year fixed effects	Yes	Yes	Yes	Yes
N	1,940,568	1,940,568	1,940,568	1,940,568
Adjusted R-squared	0.191	0.487	0.227	0.494

Table IV
Alternative Measures of CEO Ownership

The table reports regressions of workers' pay on alternative CEO ownership variable specifications, controlling for worker and subsidiary characteristics, and fixed effects for industries, regions and years. The sample is a matched employer-employee panel data set collected from public firms in Sweden over the period 1995-2002. Section IV describes the sample in detail. The dependent variable is $\log(Wage)$, where $Wage$ is the gross real monthly full-time-equivalent compensation (in 1995 kronor). *CEO Excess Votes* is the CEO's fraction of the firm's votes minus the fraction of cash flow rights. *CEO Excess Votes* $\geq 10\%$ is 1 if CEO Excess Votes $\geq 10\%$, 0 otherwise. *CEO* $\geq 20\%$ *Votes* is 1 if the CEO owns $\geq 20\%$ of the votes, 0 otherwise. *CEO Incentive* is the CEO's fraction of the firm's cash flow rights. *CEO Votes* is the CEO's fraction of the firm's votes and $(CEO\ Votes)^2$ is this fraction squared. Worker and subsidiary controls refer to the control variables included in column (4) of Table III. Industry fixed effects are based on the two-digit NACE classification. Region fixed effects are based on Statistics Sweden's classification. We compute White's (1980) robust standard errors adjusted for clustering of the observations at the firm level. t-statistics are reported in parentheses. ***, **, * denote that the value is significantly different from zero at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)
CEO Excess Votes	0.064 (2.07)**			
CEO Excess Votes $\geq 10\%$		0.027 (2.48)**		
CEO $\geq 20\%$ Votes			0.041 (3.34)***	
CEO Incentive	-0.095 (2.39)**	-0.110 (2.65)***	-0.149 (3.45)***	
CEO Votes				0.115 (1.96)**
$(CEO\ Votes)^2$				-0.189 (2.21)**
Worker and subsidiary controls	Yes	Yes	Yes	Yes
Industry, region, and year fixed effects	Yes	Yes	Yes	Yes
N	1,940,568	1,940,568	1,940,568	1,940,568
Adjusted R-squared	0.494	0.494	0.494	0.494

Table V
Effects of Firm Characteristics

The table reports regressions of workers' pay on CEO ownership variables, controlling for worker, subsidiary and firm characteristics, and fixed effects for industries, regions and years. The sample is a matched employer-employee panel data set collected from public firms in Sweden over the period 1995-2002. Section IV describes the sample in detail. The dependent variable is $\log(Wage)$, where *Wage* is the gross real monthly full-time-equivalent compensation (in 1995 kronor). *CEO Control* is 1 if the CEO owns more of the firm's votes than all other 5% blockholders together, 0 otherwise. *CEO Incentive* is the CEO's fraction of the firm's cash flow rights. *Return on Assets* is earnings before interest, taxes, depreciation, and amortization / total assets (book value). *Market-to-Book Ratio* is (market value of equity + book value of debt) / (book value of equity + book value of debt). *Firm Size* is total gross sales (in billion kronor). *Growth in Firm Size* is $\log(Firm Size_t / Firm Size_{t-1})$. *Fixed Assets / Total Assets* is net property, plant, and equipment / total assets. *Employment Risk* is the coefficient of variation in the number of employees at the firm level. *Leverage* is total liabilities / total assets (book value). *Employee Board Representation* is 1 if there is at least one union member on the board, 0 otherwise. *Non-CEO Controlling Owner* is 1 if a blockholder other than the CEO owns more of the firm's votes than all other 5% blockholders together, 0 otherwise. *Non-CEO Controlling Owner Incentive* is the blockholder's fraction of the firm's cash flow rights. *Non-Management Individual Blockholder* is 1 if an individual other than management owns $\geq 5\%$ of the votes, 0 otherwise. *Institutional Blockholder* is 1 if an institution owns $\geq 5\%$ of the votes, 0 otherwise. *Diversification* is the number of two-digit industries in which the firm is operating. *Export Intensity* is export sales / sales. *R&D Intensity* is R&D expenses / sales. *Wage Dispersion* is the coefficient of variation of monthly worker wages within the firm / 100. *CEO Age* is the CEO's age (in years). Worker and subsidiary controls refer to the control variables included in column (4) of Table III. Industry fixed effects are based on the two-digit NACE classification. Region fixed effects are based on Statistics Sweden's classification. We compute White's (1980) robust standard errors adjusted for clustering of the observations at the firm level. t-statistics are reported in parentheses. ***, **, * denote that the value is significantly different from zero at the 1%, 5%, and 10% levels, respectively.

Table V – continued

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
CEO Control	0.050 (3.08)***	0.047 (3.32)**	0.054 (3.93)***	0.046 (2.95)***	0.045 (2.99)***	0.058 (3.84)***	0.044 (2.87)***
CEO Incentive	-0.175 (3.33)***	-0.160 (3.63)***	-0.193 (4.21)***	-0.166 (3.64)***	-0.178 (3.81)***	-0.234 (4.33)***	-0.152 (3.16)***
Return on Assets	-0.055 (1.04)						
Market-to-Book Ratio	-0.000 (0.09)						
Firm Size	0.000 (0.13)						
Growth in Firm Size	0.002 (0.35)						
Fixed Assets / Total Assets	-0.055 (1.04)						
Employment Risk		-0.003 (0.50)					
Leverage			-0.051 (1.98)**				
Employee Board Representation				-0.006 (0.86)			
Non-CEO Controlling Owner					-0.019 (1.86)*		
Non-CEO Controlling Owner Incentive					0.040 (1.57)		
Non-Management Ind. Blockholder						-0.046 (2.41)**	
Institutional Blockholder						-0.035 (1.82)*	
Diversification							0.000 (0.04)
Export Intensity							-0.010 (0.57)
R&D Intensity / 100							0.028 (4.25)***
Wage Dispersion							0.296 (2.05)**
CEO Age							-0.000 (0.68)
Worker and subsidiary controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry, region, and year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	1,940,568	1,924,762	1,940,568	1,940,568	1,940,568	1,940,568	1,939,329
Adjusted R-squared	0.494	0.494	0.494	0.494	0.495	0.494	0.495

Table VI
Evidence from Changes in Managerial Entrenchment and Job Switches

The table reports regressions of workers' pay on CEO ownership variables, controlling for worker or worker-firm fixed effects. Other included control variables are time-varying worker characteristics (*Experience* and *Experience*²) as well as subsidiary characteristics, and year fixed effects. The sample is a matched employer-employee panel data set collected from public firms in Sweden over the period 1995-2002. Section IV describes the sample in detail. The dependent variable is log (*Wage*), where *Wage* is the gross real monthly full-time-equivalent compensation (in 1995 kronor). *CEO Control* is 1 if the CEO owns more of the firm's votes than all other 5% blockholders together, 0 otherwise. *CEO Incentive* is the CEO's fraction of the firm's cash flow rights. Subsidiary controls refer to the control variables included in column (3) of Table III. We compute White's (1980) robust standard errors adjusted for clustering of the observations at the firm level. t-statistics are reported in parentheses. ***, **, * denote that the value is significantly different from zero at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
CEO Control	0.024 (1.36)					
CEO Incentive	-0.104 (2.78)***					
CEO Control (1 year lag)		0.059 (3.37)***				
CEO Incentive (1 year lag)		-0.179 (5.38)***				
CEO Control (2 year lag)			0.080 (2.80)***			
CEO Incentive (2 year lag)			-0.218 (3.63)***			
CEO Control (3 year lag)				0.081 (3.21)***	0.083 (2.45)**	0.078 (2.25)**
CEO Incentive (3 year lag)				-0.227 (4.47)***	-0.240 (2.36)***	-0.228 (2.19)**
Worker fixed effects	Yes	Yes	Yes	Yes	No	Yes
Worker-firm fixed effects	No	No	No	No	Yes	No
Job switchers included	Yes	Yes	Yes	Yes	Yes	No
Worker experience variables	Yes	Yes	Yes	Yes	Yes	Yes
Subsidiary controls	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
N	1,940,568	1,621,035	1,287,528	972,155	972,155	852,003
Adjusted R-squared	0.931	0.934	0.938	0.948	0.950	0.949

Table VII
Evidence from Centralized versus Decentralized Wage Bargaining Regimes

In this table, we analyze 1990 as a control year because wage bargaining was largely centralized till 1990. As we do not have any worker-level data for the year 1990, this is a subsidiary-level analysis where the log of mean wage at the subsidiary level is the dependent variable. The results of regressing this wage variable on CEO ownership variables are displayed in column (1), where the same subsidiary controls as in column (3) of Table III are included along with fixed effects for industries and regions. Industry fixed effects are based on the two-digit NACE classification. Region fixed effects are based on Statistics Sweden's classification. To facilitate a direct comparison, we also run a regression for the 1995-2002 sample of the log of mean wage at the subsidiary level on the CEO ownership variables, controlling for the same set of variables as for 1990, but also including fixed year effects. The result is displayed in column (2). We compute White's (1980) robust standard errors adjusted for clustering of the observations at the firm level. t-statistics are reported in parentheses. ***, **, * denote that the value is significantly different from zero at the 1%, 5%, and 10% levels, respectively.

	Centralized regime	Decentralized regime
	(1)	(2)
CEO Control	-0.011 (0.19)	0.044 (2.79)***
CEO Incentive	-0.105 (0.80)	-0.164 (3.62)***
Worker controls	No	No
Subsidiary controls	Yes	Yes
Industry and region fixed effects	Yes	Yes
Year fixed effects	No	Yes
N	848	3,589
Adjusted R-squared	0.428	0.694

Table VIII
Effects of Organizational and Geographic Distance and Union Aggressiveness

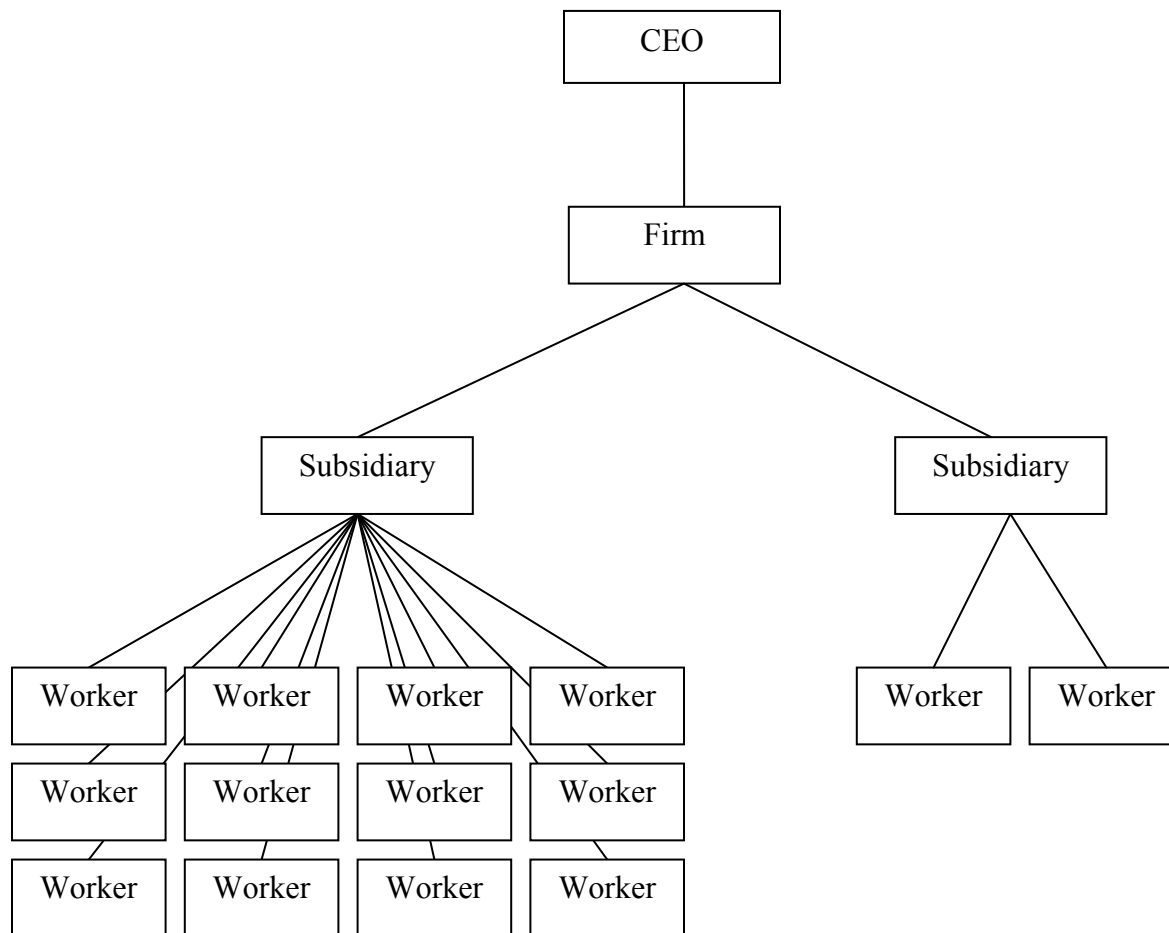
The table reports regressions of workers' pay on CEO ownership variables for different groups of workers, controlling for worker and subsidiary characteristics, and fixed effects for industries, regions and years. The sample is a matched employer-employee panel data set collected from public firms in Sweden over the period 1995-2002. The sample is restricted to firms with a CEO that has at least 3 years of tenure. Section IV describes the sample in detail. The dependent variable is $\log(Wage)$, where *Wage* is the gross real monthly full-time-equivalent compensation (in 1995 kronor). *CEO Control* is 1 if the CEO owns more of the firm's votes than all other 5% blockholders together, 0 otherwise. *CEO Incentive* is the CEO's fraction of the firm's cash flow rights. *Top-executives* is 1 if the employee is a CFO, COO, division or business unit vice-president, or similar, 0 otherwise. *Blue-collar Worker* is 1 if the employee is a blue-collar worker, 0 otherwise. *Same Municipality* is 1 if a worker is working in the same municipality as the corporate headquarters, 0 otherwise. *Aggressive Union* is 1 if a worker belongs to an industry where blue-collar workers are mainly organized by the six unions classified by Lindberg (2006) as "highly conflict-inclined," 0 otherwise. The conflict-prone unions are: The Swedish Electricians Union, The Swedish Painters' Union, The Swedish Building Workers' Union, The Swedish Transportation Workers' Union, The Swedish Dock Workers' Union, and the Syndicalists. The industries organized by these unions are: (i) Construction (SNI code 45), and (ii) Transportation (SNI codes 60-63, except codes 622 and 633). Industry fixed effects are based on the two-digit NACE classification. Worker and subsidiary controls refer to the control variables included in column (4) of Table III. Region fixed effects are based on Statistics Sweden's classification. We compute White's (1980) robust standard errors adjusted for clustering of the observations at the firm level. t-statistics are reported in parentheses. ***, **, * denote that the value is significantly different from zero at the 1%, 5%, and 10% levels, respectively.

Table VIII – continued

	(1)	(2)	(3)
CEO Control	0.068 (3.94)**	0.026 (1.29)	0.069 (2.18)**
CEO Incentive	-0.205 (2.24)**	-0.095 (1.81)*	-0.197 (2.47)**
CEO Control × Top-executive	0.168 (1.80)*		
CEO Incentive × Top-executive	-0.752 (3.03)***		
Top Executive	0.704 (13.48)***		
CEO Control × Same Municipality		0.062 (2.15)**	
CEO Incentive × Same Municipality		-0.163 (2.25)**	
Same Municipality		0.007 (0.32)	
CEO Control × Aggressive Union			-0.048 (1.15)
CEO Incentive × Aggressive Union			0.165 (1.32)
CEO Control × Blue-collar			-0.023 (0.59)
CEO Incentive × Blue-collar			0.030 (0.27)
Blue-collar			-0.124 (16.79)***
CEO Control × Aggressive Union × Blue-collar			0.096 (1.94)*
CEO Incentive × Aggressive Union × Blue-collar			-0.244 (1.74)*
Aggressive union × Blue-collar			0.032 (2.22)**
Worker and subsidiary controls	Yes	Yes	Yes
Industry, region, and year fixed effects	Yes	Yes	Yes
N	1,450,573	1,448,496	1,447,202
Adjusted R-squared	0.503	0.492	0.511

Appendix: Structure of Matched Employer-Employee Data Set

Each worker is linked to the subsidiary where he/she works through a *personnummer* (corresponding to U.S. Social Security Numbers). Subsidiaries (*dotterbolag*) are legal entities which make up a firm. A worker is employed in a subsidiary, which in turn belongs to a firm. In practice, a subsidiary is a business unit or a division. Each subsidiary is then linked to the public firm to which it belongs via an *organisationsnummer* (corresponding to U.S. Employer Identification Numbers).



CEO Control and Incentives:
Data on ownership of votes and cash flow rights

Firm-Level Data: firm characteristics such as profitability, firm size, capital structure, etc.

Subsidiary-Level Data: accounting items, industry, region, employment variables, etc.

Worker-Level Data: wage, education, experience, gender, etc.