

Do Entrenched Managers Pay Their Workers More?

HENRIK CRONQVIST, FREDRIK HEYMAN, MATTIAS NILSSON,
HELENA SVALERYD, and JONAS VLACHOS*

ABSTRACT

Analyzing a 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 cash flow rights ownership mitigate such behavior. Entrenched CEOs pay more to employees closer to them in the corporate hierarchy, geographically closer to the headquarters, and associated with conflict-inclined unions. The evidence is consistent with entrenched CEOs paying more to enjoy private benefits such as lower effort wage bargaining and improved social relations with employees. Our results show that managerial ownership and corporate governance can play an important role for employee compensation.

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

*Henrik Cronqvist is at Ohio State University; Fredrik Heyman is at the Research Institute of Industrial Economics; Mattias Nilsson is at University of Colorado at Boulder; Helena Svaleryd is at the Research Institute of Industrial Economics; and Jonas Vlachos is at Stockholm University, the Research Institute of Industrial Economics, and CEPR. We acknowledge helpful comments from Raj Aggarwal, Arturo Bris, François Degeorge, PA Edin, Rudi Fahlenbrach, Mariassunta Giannetti, Yaniv Grinstein, Campbell Harvey (the editor), Jean Helwege, David Hirshleifer, Clifford Holderness, Andrew Karolyi, Augustin Landier, Assar Lindbeck, Marco Pagano, Bob Parrino, Pat Reagan, Kristian Rydqvist, Per Strömberg, Bruce Weinberg, Ingrid Werner, Fabrizio Zilibotti, and seminar participants at the American Finance Association, European Finance Association, European Economic Association, Financial Management Association, Western Finance Association, Zurich Conference on Alternative Views of Corporate Governance, Institute for International Economic Studies, Ohio State University (Department of Finance and Department of Economics), Research Institute of Industrial Economics, Swedish Institute for Financial Research, University of Colorado at Boulder, and Uppsala University. The comments by an anonymous referee, the Associate Editor, Angie Low, and René Stulz were particularly helpful. We are grateful to Statistics Sweden, MM Partners, and Findata for providing firm-, subsidiary-, and worker-level data for this project, and to Henrik Lindberg at the RATIO Institute for sharing with us his data on labor market conflicts. Excellent research assistance was provided by John Christensen. Finally, we thank CIBER, the Family Owned Business Institute at Grand Valley State University, the Jan Wallander and Tom Hedelius Research Foundation, the Swedish Research Council, and the Marianne and Marcus Wallenberg Foundation for financial support.

¹Holderness and Sheehan (1988) show that executives owning majority blocks receive larger salaries than executives in similar firms where shareholdings are more dispersed. Core,

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) is 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 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 coworkers, such as division vice presidents and other top executives, more pleasant, and higher compensation may also produce more loyalty. Moreover, higher pay can also reduce the CEO's effort in wage bargaining, particularly 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.

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 voting 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. Evidence from an exogenous shift in labor market relations suggests a causal interpretation of our findings.

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.

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 to 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 overrepresented.

Furthermore, we find that the effects of CEO control and financial incentives are significantly larger for the firm's top executives (CFOs, COOs, division vice presidents, etc.), and that the effects are significantly stronger for workers located in the same municipality as the corporate headquarters. We also find that the effect of CEO control and financial incentives are stronger for blue-collar workers organized by more aggressive and conflict-inclined unions, which is consistent with entrenched CEOs exerting less effort in wage bargaining compared to other CEOs. Overall, our evidence is in line with an agency model in which managers have a taste for both profits and highly paid employees, 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. Using firm- and plant-level data in the United States, BM show that there was a significantly larger increase in the wage bill for firms incorporated in states that passed antitakeover laws in the 1980s. This is interpreted as evidence that poorly governed CEOs want to "enjoy the quiet life" through lower effort wage bargaining.

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 matters for workers' pay even when all sample firms are subject to a common legal environment. CEO ownership has 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 contribution to the finance literature.³

In addition, our matched employer–employee panel data set allows us to expand on BM's work along several dimensions. With our detailed data, we are able to control for sorting of workers across firms based on worker characteristics such as education or experience. More importantly, our worker-level data allow us to examine which groups of workers benefit the most from the higher wages in firms with an entrenched CEO. Our paper thereby contributes to the small, existing literature on managerial entrenchment and workers' pay by showing that entrenched CEOs want to pay higher compensation to employees to extract private rents in the form of friendlier and more pleasant relationships with employees.

Our work is also of relevance for the many papers in the finance literature 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 a form of nonpecuniary private benefits for corporate managers

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.

(e.g., Jensen and Meckling (1976)), our paper is among the first to provide empirical evidence on the existence of such benefits and on the economic importance of such benefits for CEO behavior. This finding is 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 United States are less likely to lay off workers located geographically closer to the 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 I discusses theoretical arguments for private benefits to CEOs from higher workers' pay. Section II provides some institutional background. Section III describes the construction of our matched employer–employee panel data set and presents summary statistics. Section IV reports results on the relation between managerial entrenchment and workers' pay. Section V reports evidence on the economic mechanisms that can explain why entrenched managers pay their workers more. Section VI concludes.

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

Jensen and Meckling (1976) discuss the importance of labor market-related private benefits for corporate managers. They argue that managers' nonpecuniary 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 shareholders do worker loyalty and better manager–employee relationships, in particular with the CEO's own coworkers, such as other executives, or with 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 pay 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 go 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 expect that all managers could potentially enjoy the private benefits of higher workers' pay, CEOs differ in their ability and incentives to extract them. Entrenched managers are able to increase wages without impunity, but managers' incentives to pay higher wages are mitigated by their financial stakes (Jensen and Meckling (1976)). The empirical prediction is that workers' pay is positively related to measures of CEO control, but negatively related to measures of managers' financial incentives through ownership of cash flow rights in the firm. Because CEO equity ownership not only confers financial incentives, but also gives the CEO voting rights, which

can serve as an entrenchment device (Stulz (1988)), our empirical analysis has to disentangle effects of control from incentive (alignment-of-interests) effects.

Another theoretical argument for why managers may want to pay their workers more is presented by Pagano and Volpin (2005). They 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. Under this hypothesis, we would expect a negative relationship between CEO ownership of control rights as well as cash flow rights and workers' pay.

II. 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 control rights (votes) from the financial incentive effect due to cash flow rights is difficult in a one-share-one-vote setting. The task is somewhat easier, however, in stock markets with frequent deviations from one-share-one-vote. Sweden is one such market. As Bebchuk, Kraakman, and Triantis (2000) point out, 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 as 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 makes Sweden suitable for testing hypotheses related to managerial entrenchment and workers' pay.

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

⁴ In many European countries, such as Italy (e.g., Zingales (1994)) and to some extent also the United States (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)).

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

private benefit to a CEO is likely to depend on economic conditions and the institutional environment, and thus would 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 due to less managerial discretion over wages.

The value to a CEO of lower effort wage bargaining and friendlier labor and union relations is also 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 data from the 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 discuss in more detail in Section V, 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 to the Swedish case.

C. Labor Market Structure

As 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% to 85% (96% to 99%) among blue-collar (white-collar) workers, implying 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 in our tests.

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 Landsorganisatöser (LO; 2000).

⁷ Iversen (1998) constructs an index of centralization of wage negotiations. Prior to 1990, Sweden is 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.

III. 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 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 in which he/she works through a *personnummer* (corresponding to U.S. Social Security Numbers). Each year, the data set 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 to 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 are 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, 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 is unlikely that relevant 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 CEO being either “in control” or “not in control” and is a conservative measure because a CEO with more votes than the remaining

⁸ In Sweden, these subsidiaries (*dotterbolag*) are legal entities that make up a firm. A worker is employed in a subsidiary that, 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.

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 verify that our results are unaffected if we include the ESOP-like shares with the CEO ownership when defining CEO control.

5% of blockholders is clearly entrenched as he can out-vote other blockholders (Cronqvist and Nilsson (2005)). This measure takes the firm's overall 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 and 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 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 Volvo 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 the wage variable are of particular interest. Of the firm-year observations, 19.5% have a CEO with more control rights than all other blockholders together. The mean CEO ownership of votes (cash flow rights) is 12.3% (7.0%). Conditional on being a 5% blockholder, the mean CEO ownership of votes (cash flow rights) is 45.7% (26.1%). Across all measures of control and incentives, we find 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 1995). Panel D reports a correlation matrix for the wage and CEO ownership variables.

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 have compiled 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).

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 III 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 10 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	$90,000 >$ 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	$90,000 >$ 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
Variable Definitions and Summary Statistics

The sample is a matched employer–employee panel data set collected from public firms in Sweden over the period 1995–2002. Section III 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.

		Mean	St. Dev.
Panel A: Firm Characteristics ($N = 1,065$)			
<i>CEO control and incentives</i>			
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
<i>Other firm-level characteristics</i>			
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 ($N = 3,589$)			
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

(continued)

Table II—Continued

Panel B: Subsidiary Characteristics ($N = 3,589$)							
		Mean	St. Dev.				
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 ($N = 1,940,568$)							
Wage	Gross real monthly full-time-equivalent compensation, where monthly compensation is the sum of monthly net earnings, that is, 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 $\geq 10\%$	CEO Excess Votes $\geq 20\%$
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 $\geq 10\%$	0.01	0.85	0.85	0.81	0.94	—	0.90
CEO $\geq 20\%$ Votes	0.05	0.92	0.90	0.89	0.86	0.90	—

IV. Evidence on Managerial Entrenchment and Workers' Pay

A. Model Specification

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

$$\log(\text{Wage})_{ijkt} = \theta \text{Year}_t + \gamma \text{Worker}_{it} + \delta \text{Subsidiary}_{jt} \\ + \beta_C (\text{CEO Control})_{kt} + \beta_I (\text{CEO Incentive})_{kt} + \varepsilon_{ijkt}, \quad (1)$$

where i indexes workers, j indexes subsidiaries, k indexes firms, and t indexes years. The variable Wage_{ijkt} is a worker's wage as previously defined, Year_t denotes year-fixed effects, Worker_{it} is a vector of worker characteristics, Subsidiary_{jt} is a vector of subsidiary characteristics, $(\text{CEO Control})_{kt}$ and $(\text{CEO Incentive})_{kt}$ 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 49 two-digit industries and seven 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 include 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. The results in column (4) of the table show that higher education and more experience are associated

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 and thereby study the effects of changes in ownership status.

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.

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 III describes the sample in detail. The dependent variable is $\log(\text{Wage})$, 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. The control variables are defined in Table II. 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 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)***
<i>Worker Controls</i>				
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)***
<i>Subsidiary Controls</i>				
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
<i>N</i>	1,940,568	1,940,568	1,940,568	1,940,568
Adjusted- <i>R</i> ²	0.191	0.487	0.227	0.494

with higher pay: Those with at least an undergraduate degree are paid about 66% more than those with at most an elementary school education, and 10 years of work experience is associated with 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 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 highly statistically significant in columns (1) to (4). The effect is large in economic terms. The estimated coefficient in column (4) implies that a CEO in control pays about 5%, or \$1,900 (as of 1995), higher average annual wages, all else equal. The table also provides estimates of the effects of managers' financial incentives on wages. Managers who own more cash flow rights in their firms pay lower wages. 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.

Overall, 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 own a stake lower than what is required for control are the ones who use a high wage policy as an antitakeover mechanism.¹³

C. Robustness Checks

We perform several robustness checks to address concerns regarding the results 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 potential

¹³ A possibly more precise test of the takeover-entrenchment hypothesis involves identifying firms that are subject to takeover pressure, in which case a management-labor alliance as protection against a control threat might be most valuable. In untabulated regressions, we therefore include an indicator variable, *Takeover Target*, that is equal to 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, we find no evidence that wage policies differ between takeover targets and other firms.

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 toward zero as it will proxy in part for the omitted variable's effect on workers' pay.¹⁴ Instead, we 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 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 III is then run on this smaller sample, and the procedure is repeated 100 times. The untabulated results show that the 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 make sure that the coefficient estimates in Table III are capturing associations 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. The untabulated results show 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). 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 substitute the *CEO Control* variable for 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, for example, Claessens et al. (2002) and Villalonga and Amit (2006). In column (2), we use a dummy variable indicating that the CEO has 10% or more *Excess*

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.

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 characteristic, 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 III describes the sample in detail. The dependent variable is $\log(\text{Wage})$, 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 $(\text{CEO Votes})^2$ 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)**
$(\text{CEO Votes})^2$				−0.189 (2.21)**
Worker and subsidiary controls	Yes	Yes	Yes	Yes
Industry-, region-, and year-fixed effects	Yes	Yes	Yes	Yes
<i>N</i>	1,940,568	1,940,568	1,940,568	1,940,568
Adjusted- <i>R</i> ²	0.494	0.494	0.494	0.494

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 cut-off 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 $(\text{CEO Votes})^2$ 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 first significantly increasing in *CEO Votes*, but then significantly decreases as *CEO Votes* becomes very large. The wage effect is maximized around 30% of votes and starts to become negative after around 61% of votes.

Finally, we summarize without tabulating some other robustness checks. First, we find that our results are somewhat stronger if we use three-digit, rather than two-digit, industry-fixed effects. Second, we include fixed effects corresponding to 14 collective bargaining agreement areas as a labor market-based industry classification, and the results are similar. Third, we add fixed effects for 26 broad classes of occupations or professions defined by Statistics Sweden, for example, "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 address concerns that we put disproportionate weight on firms with many employees, 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; again, the results are unaffected. As an alternative, we estimate the benchmark regression without the CEO variables, but with firm-fixed effects, and then regress the fixed effects on firm-average CEO control and incentives. The results remain 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.

D.1. Productivity

In the 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 Table V, 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 *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.

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 III describes the sample in detail. The dependent variable is $\log(\text{Wage})$, 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. Worker and subsidiary controls refer to the control variables included in column (4) of Table III. The firm characteristics are defined in Table II. 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)	(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)*		

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. We find that the relation between managerial entrenchment and workers’ pay remains after controlling for employment risk.

D.3. *Capital Structure*

A firm’s capital structure may also be related to managerial entrenchment (e.g., 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)). 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 United States, we find that firms with more debt pay their workers significantly lower wages. This result may arise because 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, that is, 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 the indicator variable *Employee Board Representation* that is equal to one if a union member sits on the board, and zero otherwise.¹⁵ 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, we do not expect large shareholders that are not CEOs to enjoy nonpecuniary private benefits related to higher workers’ pay. In column (5), we include an indicator

¹⁵ These data come from Sundqvist and Sundin’s (1995–2002) publications “Directors and Auditors in Sweden’s Listed Companies.”

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, 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, and no effect on wages by non-CEO incentives.

Second, in column (6) we examine the effects of nonmanagement blockholders' presence in a firm, even if those blockholders are not in control, by including two different indicator variables. The first variable, *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. The second variable, *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: nonmanagement 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 that 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 versus follower is *Export Intensity* because firms that export a larger percentage might be more likely to be market leaders. A possible proxy for more versus 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," that is, becoming the CEO, is smaller. Thus, 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

¹⁶ This result does not imply that nonmanagement blockholders do not exploit minority shareholders. It merely suggests that nonmanagement blockholders might exploit minority shareholders in ways other than through higher pay to the firm's workers. In fact, nonmanagerial 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 that give them valuable private benefits.

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.

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

In this section, we provide direct 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. 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 ownership status to another. Because of the short time period available for analysis (1995 to 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 -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, for example, the arrival of a CEO with different control status and cash flow rights ownership. Hence, in columns (2) to (4), we therefore include the *CEO Control* and *CEO Incentive* variables lagged 1, 2, and 3 years, respectively. We find that the effects are statistically significant and become larger in economic 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, that is, "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 to be 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 statistically significant and large in economic terms. 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 imprint on a firm's wage policy.¹⁸

¹⁸ In the rest of the paper, we therefore focus on CEOs who have been in a firm at least 3 years.

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 III 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. *** and ** denote that the value is significantly different from zero at the 1% and 5% 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
<i>N</i>	1,940,568	1,621,035	1,287,528	972,155	972,155	852,003
Adjusted- <i>R</i> ²	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 until 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). *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. 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. *** denotes that the value is significantly different from zero at the 1% levels.

	Centralized Regime (1)	Decentralized Regime (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
<i>N</i>	848	3,589
Adjusted- <i>R</i> ²	0.428	0.694

E.2. Centralized versus Decentralized Wage Bargaining Regimes

Next, we exploit the shift in labor market relations briefly discussed in Section II.C. 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 to 2002 period with decentralized wage bargaining, we report results from collapsing our data set at the subsidiary level and reestimating 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 on causality.

V. Why Do Entrenched Managers Pay Their Workers More?

In this section, the objective is to explore our detailed data set to analyze 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 a priori we would 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 coworkers. 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, COOs, and division or business unit vice presidents). We 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. The relations between *CEO Control* and *CEO Incentive*, respectively, and workers' pay are significantly stronger for top executives than for other workers. The effect is economically meaningful as CEOs in control pay their executives on average about 18% more, all else equal. The financial incentive effect from cash flow rights ownership is also stronger 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.

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 are otherwise geographically close to the CEO. The idea is that CEOs interact more with employees who are located close by. Recent work by Landier, Nair, and Wulf (2007) supports the notion that CEOs would be generally "friendlier" toward employees who are located close to the headquarters. While they do not study wages, they document that firms are less likely to

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 III 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* 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.

	(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)***

(continued)

Table VIII—Continued

	(1)	(2)	(3)
CEO Control $\times$ Aggressive Union $\times$ Blue-collar			0.096 (1.94)*
CEO Incentive $\times$ Aggressive Union $\times$ Blue-collar			−0.244 (1.74)*
Aggressive Union $\times$ Blue-collar			0.032 (2.22)**
Worker and subsidiary controls	Yes	Yes	Yes
Industry-, region-, and year-fixed effects	Yes	Yes	Yes
<i>N</i>	1,450,573	1,448,496	1,447,202
Adjusted- <i>R</i> ²	0.503	0.492	0.511

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. Furthermore, they also find evidence suggesting that such geographical "favoritism" may reflect an agency problem rather than being a shareholder value-maximizing policy.

We 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 who work geographically close to the CEO. The economic size of the estimated effects is 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 private benefit that 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, and 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 to 2002 that could be attributed to a specific trade union, these unions were involved in 122 (55%).

As worker-level data on union membership are 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. 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 interested in the triple interaction terms between *CEO Control* and *CEO Incentive* on the one hand, and the indicator variables *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.

VI. Conclusions

Using a large panel data set that 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,

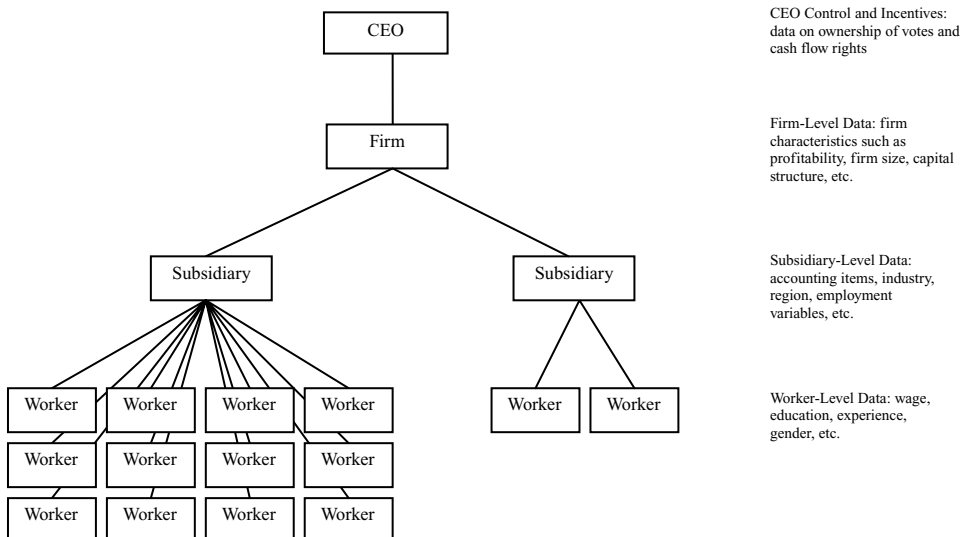
¹⁹ We also compare this classification to data from the International Labour Organization (ILO), and find that the number of days lost due to labor market conflicts divided by the total number of workers is indeed highest for the following industries: "Public Administration and Defence" (an industry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

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 nonpecuniary private benefits from lower effort wage bargaining as well as improved social relations with their coworkers.

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.

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 that 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).



REFERENCES

- Abowd, John M., Francis Kramarz, and David N. Margolis, 1999, High wage workers and high wage firms, *Econometrica* 67, 251–333.
- Bebchuk, Lucian A., Reinier Kraakman, and George Triantis, 2000, Stock pyramids, cross-ownership, and dual-class equity: The creation and agency costs of separating control from cash flow rights, in Randall Morck, ed.: *Concentrated Corporate Ownership* (University of Chicago Press, Chicago, IL).
- Berger, Philip G., Eli Ofek, and David L. Yermack, 1997, Managerial entrenchment and capital structure decisions, *Journal of Finance* 52, 1411–1438.
- Bertrand, Marianne, and Sendhil Mullainathan, 1999, Is there discretion in wage setting? A test using takeover legislation, *Rand Journal of Economics* 30, 535–554.
- Bertrand, Marianne, and Sendhil Mullainathan, 2000, Agents with and without principals, *American Economic Review* 90, 203–208.
- Bertrand, Marianne, and Sendhil Mullainathan, 2001, Are CEOs rewarded for luck? The ones without principals are, *Quarterly Journal of Economics* 116, 901–932.
- Bertrand, Marianne, and Sendhil Mullainathan, 2003, Enjoying the quiet life? Corporate governance and managerial preferences, *Journal of Political Economy* 111, 1043–1075.
- Claessens, Stijn, Simeon Djankov, Joseph P. H. Fan, and Larry H. P. Lang, 2002, Expropriation of minority shareholders in East Asia, *Journal of Finance* 57, 2741–2771.
- Claessens, Stijn, Simeon Djankov, and Larry H. P. Lang, 2000, The separation of ownership and control in East Asian corporations, *Journal of Financial Economics* 58, 81–112.
- Core, John E., Robert W. Holthausen, and David F. Larcker, 1999, Corporate governance, chief executive officer compensation, and firm performance, *Journal of Financial Economics* 51, 371–406.
- Cronqvist, Henrik, and Mattias Nilsson, 2003, Agency costs of controlling minority shareholders, *Journal of Financial and Quantitative Analysis* 38, 695–719.
- Cronqvist, Henrik, and Mattias Nilsson, 2005, The choice between rights offerings and private equity placements, *Journal of Financial Economics* 78, 375–407.
- Durnev, Art, and E. Han Kim, 2005, To steal or not to steal: Firm attributes, legal environment, and valuation, *Journal of Finance* 60, 1461–1493.
- Dyck, Alexander, and Luigi Zingales, 2004, Private benefits of control: An international comparison, *Journal of Finance* 59, 537–600.
- Fama, Eugene F., and James D. MacBeth, 1973, Risk, return, and equilibrium: Empirical tests, *Journal of Political Economy* 81, 607–636.
- Gompers, Paul A., Joy L. Ishii, and Andrew Metrick, 2006, Extreme governance: An analysis of dual-class companies in the United States, Working paper, The Wharton School, University of Pennsylvania.
- Hanka, Gordon, 1998, Debt and the terms of employment, *Journal of Financial Economics* 48, 245–282.
- Himmelberg, Charles P., R. Glenn Hubbard, and Darius Palia, 1999, Understanding the determinants of managerial ownership and performance, *Journal of Financial Economics* 53, 333–384.
- Holderness, Clifford G., and Dennis P. Sheehan, 1988, The role of majority shareholders in publicly held corporations: An exploratory analysis, *Journal of Financial Economics* 20, 317–346.
- Iversen, Torben, 1998, Wage bargaining, central bank independence, and the real effects of money, *International Organization* 52, 469–504.
- Jensen, Michael C., 1986, Agency costs of free cash flow, corporate finance and takeovers, *American Economic Review* 76, 323–329.
- Jensen, Michael C., and William Meckling, 1976, Theory of the firm: Managerial behavior, agency costs, and ownership structure, *Journal of Financial Economics* 3, 305–360.
- Krueger, Alan B., 1991, Ownership, agency, and wages: An examination of franchising in the fast food industry, *Quarterly Journal of Economics* 106, 75–101.
- La Porta, Rafael, Florencio Lopez-de-Silanes, and Andrei Shleifer, 1999, Corporate ownership around the world, *Journal of Finance* 54, 471–517.

- Landier, Augustin, Vinay B. Nair, and Julie Wulf, 2007, Trade-offs in staying close: Corporate decision making and geographic dispersion, *forthcoming Review of Financial Studies*.
- Landsorganisationen (LO), 2000, *Facklig Organisationsgrad* (Stockholm, Sweden).
- Lazear, Edward P., and Sherwin Rosen, 1981, Rank-order tournaments as optimum labor contracts, *Journal of Political Economy* 89, 841–864.
- Lindberg, Henrik, 2006, Konflikt, konkurrens och korporativa karteller—Nya konfliktmönster och konfliktdimensioner på svensk arbetsmarknad 1993–2005, *RATIO* (Stockholm, Sweden).
- Matsa, David A., 2006, Capital structure as a strategic variable: Evidence from collective bargaining, Working paper, Kellogg School of Management, Northwestern University.
- Mincer, Jacob, 1974, *Schooling, Experience and Earnings* (National Bureau of Economic Research, New York, NY).
- Pagano, Marco, and Paolo Volpin, 2005, Managers, workers, and corporate control, *Journal of Finance* 60, 843–870.
- Perotti, Enrico C., and Kathryn E. Spier, 1993, Capital structure as a bargaining tool: The role of leverage in contract renegotiation, *American Economic Review* 83, 1131–1141.
- Petersen, Mitchell A., 2007, Estimating standard errors in finance panel data sets: Comparing approaches, *Review of Financial Studies*, forthcoming.
- Schoar, Antoinette, 2002, Effects of corporate diversification on productivity, *Journal of Finance* 57, 2379–2403.
- Shleifer, Andrei, and Lawrence H. Summers, 1988, Breach of trust in hostile takeovers, in Allan J. Auerbach, ed.: *Corporate Takeovers: Causes and Consequences* (University of Chicago Press, Chicago, IL).
- Shleifer, Andrei, and Robert W. Vishny, 1986, Large shareholders and corporate control, *Journal of Political Economy* 94, 461–488.
- Stulz, René M., 1988, Managerial control of voting rights: Financing policies and the market for corporate control, *Journal of Financial Economics* 20, 25–54.
- Thaler, Richard H., 1989, Interindustry wage differentials, *Journal of Economic Perspectives* 3, 181–193.
- Villalonga, Belen, and Raphael Amit, 2006, How do family ownership, control and management affect firm value? *Journal of Financial Economics* 80, 385–417.
- White, H., 1980, A heteroskedasticity-consistent covariance matrix estimator and a direct test for heteroskedasticity, *Econometrica* 48, 817–838.
- Zhou, Xianming, 2001, Understanding the determinants of managerial ownership and the link between ownership and performance: Comment, *Journal of Financial Economics* 62, 559–571.
- Zingales, Luigi, 1994, The value of the voting right: A study of the Milan stock exchange experience, *Review of Financial Studies* 7, 125–148.