Pay Disparities within Firms: The Role of Chief Executive Officers

Taekjin Shin
Department of Sociology
University of California, Berkeley
tshin@berkeley.edu

February 14, 2008

Pay Disparities within Firms: The Role of Chief Executive Officers

Abstract

This paper analyzes pay disparities between executive managers and rank-and-file workers at large United States corporations. Most existing studies on income inequality examine pay at individual employee level. This paper departs from this approach and analyzes inequality at firm level. Based on the view that organizations reflect the nature of the social and political relationships in which top decision-makers are embedded, this paper focuses on the role of Chief Executive Officers (CEOs) in shaping the pay structure within their firms. Using a sample of the 254 largest U.S. corporations during the period of 1992-2005, the analysis suggests that CEOs' power and functional backgrounds affect pay disparities between top-five executive managers and average workers within companies. Firms managed by CEOs with longer tenure paid executives more, paid workers less, and had greater pay disparities compared to firms with shorter-tenure CEOs. Similarly, firms with CEOs recruited from outside the organization paid executives more, paid workers less, and had greater pay disparities compared to firms in which CEOs had been internally promoted. The results also suggest that firms managed by CEOs with a finance background pay workers less and have greater pay disparities compared to firms managed by CEOs with a general management background.

Keywords: Pay Disparities, Income Inequality, Corporate Executives.

Pay disparities in the United States have been given a great deal of attention because of the growing inequality in earnings and income that has occurred over the past few decades. There is a large body of literature about the causes of the rising inequality in the labor market. Most studies have examined wage differentials between individual workers with different characteristics (e.g., skill levels, gender, race), but have paid little attention to factors at the organizational level (for a review, see Morris and Western, 1999). Employer organizations—firms and establishments—have a direct impact on employment, power relations, and job rewards. Organizational structures and processes constitute the key mechanisms in which labor is arranged, production technologies are implemented, and power is executed. For this reason, Baron and Bielby (1980) argued that sociologists studying labor market inequality should "bring the firms back in" by incorporating organizational focus in the analysis. More than two decades have passed, but there has been little progress in organization-level analysis of earnings and income inequality (for exceptions, see Pfeffer and Langton, 1988; Sørensen and Sorenson, 2007).

This study is one of the first attempts to analyze the sources of income inequality at firm level, achieving this by examining pay disparities within firms. Social and political processes in work organizations have a direct impact on how resources, power, and job rewards are distributed within those organizations, which in turn determines the dispersion of pay within the organizations. If one attempts to address income inequality at the organizational level, pay disparities within firms are likely to provide the lens through which one can observe the link between organizational processes and inequality outcomes.

This paper analyzes pay disparities between executive managers and rank-and-file workers as a measure of firm-level income inequality. There are three important reasons for choosing this strategy. First, executive managers obviously constitute the top of the top income

group, whose incomes have risen most rapidly relative to workers' income. During the past two decades, most of the rise in income inequality has been accounted for by inequality at the upper tail of the distribution. From 1985 to 2002, the top 10 percent of earnings rose by about 43 percent. But among the top 1 percent, it increased by 81 percent. Among the top 0.01 percent, it more than doubled (Piketty, and Saez, 2007). According to one estimate, in 2001, executives accounted for more than half of the income in the top 0.01 percent of the distribution (Dew-Becker and Gordon, 2005: 122). Murphy (1999) reported that the ratio of average CEO pay—including only salary and bonus—to the average pay of a production worker was 27 in 1970 and 80 in 1996. When total compensation—including stock options—was considered, the ratio grew from 27 in 1970 to 200 in 1996 (Murphy, 1999: 2553). Therefore, the widening pay gap between executives and average workers is a significant part of the growing income inequality in the United States.

Second, there is a theoretical reason that we need to examine executive managers when studying inequality. As leaders of organizations, executive managers determine significant parts of organizational strategies and culture, which affect how resources are distributed among their companies' constituents, including shareholders, boards of directors, employees, and the managers themselves (Hambrick and Mason, 1984; Finkelstein, 1992). Particularly, the role of executives in public corporations has received a great deal of attention since the 1990s. Investors and financial economists began to criticize executives for being paid too much—to the detriment of shareholder wealth. Politicians and the public added populist outcry against exorbitant executive pay. These factors created tremendous pressure to reform corporate governance and the executive compensation system (Blair, 1995; Lazonick and O'Sullivan, 2000). Without

addressing the power relationships among different groups of the stakeholders, one cannot fully understand organizational and institutional sources of inequality in modern economy.

Finally, there is a pragmatic reason to analyze executive pay when studying inequality. Information about executive management at large public corporations is often available through regulatory agencies and media archives, which makes it uniquely possible to match individual executives to the firm at which they work. Knowing which manager works at which firm provides a tremendous advantage to the research. This pragmatic advantage is important because most other studies have relied on household surveys that provide no identifying information about the respondents' employers. At least in the United States, matching individual workers to their employers is extremely difficult using publicly available survey data (Abowd, Haltiwanger, and Lane, 2004).

This paper investigates sources of within-firm pay disparities between corporate executives and rank-and-file workers, focusing on the role of CEO characteristics in determining the pay structure. As the most visible and powerful decision-makers in most corporations, CEOs have a significant influence on a wide array of organizational processes and outcomes, such as strategies, formal structure, and informal culture (Fligstein, 1985; Finkelstein, 1992). Building on this premise, this paper investigates how CEO characteristics affect pay disparities through two kinds of social processes: power and the conception of control. Using a sample of the 254 largest U.S. corporations from 1992-2005, I analyze the determinants of within-firm pay disparities between top-five executive managers and rank-and-file workers. The results show that CEO characteristics have significant effects on pay disparities. Supporting hypotheses about the effect of CEO power, firms with CEOs who have greater power within the organization pay rank-and-file workers less while granting greater pay to executives, resulting in greater pay disparities.

Consistent with the theory of the conception of control, the results also suggest that CEOs with functional backgrounds in finance tend to pay workers less compared to CEOs with other backgrounds, resulting in greater pay disparities.

CEO Characteristics and Pay Disparities

How do the characteristics of top managers—specifically CEOs—affect the distribution of employee compensation within firms? Neoclassical economics is largely silent about this question. For neoclassical economists, a firm is considered a production function that maximizes output, and managers, as homogeneous inputs into the production process, make efficiency-maximizing decisions. Under some extreme assumptions, managers are regarded as perfect substitutes for other managers; in other words, who actually manages the firm does not matter in terms of the compensation system or in pay disparities. Each employee is paid according to his or her marginal productivity. Therefore, the distribution of compensation directly reflects the distribution of productivity and its proxies (such as human capital), regardless of the characteristics of top managers.

Behavioral and sociological theories regarding organizations depart from this neoclassical economic perspective. Organizational theorists view a firm as a social organization consisting of human actors with diverse interests and ongoing social interactions. In this view, managers participate in decision-making processes that affect organizational outcomes—such as strategies, policies, structures, and culture. These outcomes can influence many areas of the firm, including the compensation system and pay disparities. Managerial decision-making processes are not driven entirely by efficiency-maximizing rationality. There are two social mechanisms on

which top managers often rely: power and the conception of control. A powerful CEO can influence the process of compensation determination through board cooptation, resource dependence, and informational advantage. Also, the CEO's cognitive framework and worldview, constituting what Fligstein (1990) calls "the conception of control," can affect decision-making patterns and compensation systems.

Power

Organizational theorists have long recognized the importance of power in organizations. In the context of a CEO's power over the compensation system, three processes are at work: board cooptation, resource dependence, and informational advantage. A powerful CEO can influence the board of directors and the compensation committee by nominating directors who are politically and socially more favorable to the CEO's interests, and sometimes through direct service as chairman of the board (Wade, O'Reilly, and Chandratat, 1990; Rechner and Dalton, 1991). A CEO can also exert power by exploiting resource dependence (Pfeffer and Salancik, 1978; Burt, 1983). A CEO might have unique access to resources that are valued by the firm, such as connections to customers, regulatory agencies, or innovative technologies. Finally, a CEO can become powerful through informational advantage. A greater familiarity with the company's business, insider information about the organization, and technical expertise in operations can provide CEOs with significant power over decision-making processes, including compensation determination.

When addressing CEO power, it is important to clarify the issue of over whom the power is exercised. Power is inherently a relational concept; power is meaningful only when it refers to the actual or potential ability to control the behavior of others (Emerson, 1962). In a public

6

corporation, a CEO can have greater or smaller power over different groups of organizational members, such as the board of directors, investors, and the employees. Since our focus is on the effect of CEO power on the structure of pay within the firm—more specifically, pay disparities between executive managers and average workers—, it is important to examine the sources of CEO power that are particularly relevant to two groups: board of directors and other employees. In theory, the roles of board of directors include monitoring managerial behaviors and determining managerial personnel issues, including appointment, compensation, and dismissal. In reality, CEOs can use political power over the board in order to interfere with the board's roles and affect their own compensation in a more favorable way (Wade, et al. 1990; Bebchuk and Fried, 2004). CEO power over the board can go beyond setting of the CEO pay and affect the compensation for the non-CEO executive managers. Carpenter and Sanders (2002) found that CEO pay is positively and significantly correlated with the compensation for the members of top management team (TMT). Feelings of fairness and equity are important in top management teams (Kabanoff, 1991), such that CEOs use their power and influence in order to maintain relative pay differentials within the TMT. Wade, O'Reilly, and Pollock (2006) showed that CEOs use their power not only to increase their own pay, but also that of their subordinates. The influence of CEOs on their subordinates' pay was stronger as the subordinates' rank was closer to the CEO, such as senior executives and executive vice presidents (Wade, O'Reilly, and Pollock, 2006). Therefore, CEOs power over the board can positively affect compensation of non-CEO executives.

CEOs can also exert significant power over rank-and-file workers. As leader at the top of the hierarchy, CEOs can draw on their formal authority to make managerial decisions and control the bargaining power of the labor. In principle, management as an employer has direct

7

and unilateral power over employment of workers. Also, in larger, more complex organizations, CEOs and top executives can be adept in gathering systematic information about employee behaviors and corporate operations, while controlling how much information is shared with the employees. Through such a power base, CEO power has a considerable impact on the level of compensation for rank-and-file workers.

A common measure of CEO power is CEO tenure. With tenure, a CEO gains more power in an organization through board cooptation and informational advantage (Hill and Phan, 1991; Greve and Mitsuhashi, 2007). Normally, a CEO is able to nominate new board members. While a newly appointed CEO has limited influence over an existing board, he or she may be able to exercise increasing influence over board composition by bringing in his or her own nominees over time (Wade et al., 1990). These new directors are likely to feel a social obligation to act in accordance with the interests of the CEO who granted the director positions, resulting in higher pay for the CEO (Crystal, 1991; Bebchuk and Fried, 2004). Such a CEO can exercise his or her power to positively influence the level of pay for other executive managers (Wade, O'Reilly, and Pollock, 2006).

With tenure, a CEO can also increase his or her familiarity with the business and the organization, thereby controlling the firm's internal information system (Elhagrashy, Harrison, and Buchholz, 1999). This informational advantage can allow a CEO to influence the processes of setting executive compensation as well as designing the compensation structure for rank-and-file workers. A CEO with greater organizational power can successfully negotiate with the labor, win wage concessions, and often cut employee benefits. Therefore, a CEO with longer tenure can establish power over the board to positively influence executive pay while exercising power

over the labor to suppress and reduce workers' pay. The result would be greater pay disparities within the firm.

Previous research has shown that CEO tenure is positively associated with CEO compensation (Finkelstein and Hambrick, 1989; Hill and Phan, 1991; Elhagrashy, Harrison, and Buchholz, 1999; Wade, Porac, Pollock, and Graffin, 2006). However, there has been no empirical test on whether CEO tenure has an impact on compensation for non-CEO executives.[1] In this paper, I examine the impact of CEO power on top five executives' pay in order to capture the level of compensation for the upper echelon in each organization. The level of top-five compensation represents the amount of job rewards distributed to the top of the organization, and this will be contrasted with the average pay for rank-and-file workers. The difference between aggregate top-five executive pay and average workers' pay constitutes pay disparities.

Hypothesis 1. CEO tenure increases executive pay.

Hypothesis 2. CEO tenure decreases average workers' pay.

Hypothesis 3. CEO tenure increases pay disparities between executives and average workers.

Another measure of CEO power is appointment of an outsider as CEO. Controlling for tenure as CEO, a CEO from outside may exert power through resource dependence and informational advantage. For an outsider CEO, resource dependence and informational advantage can work in two ways. First, compared to a CEO promoted from the inside, an outsider CEO may be able to maintain a wider external network with his or her former

---

[1] In a related study, Wade, O'Reilly, and Pollock (2006) found that CEO power is positively associated with non-CEO executives' pay. However, as a proxy for CEO power, they used CEO/chairman duality instead of CEO tenure. In their sample, 88% of the firms had CEOs as chairman of the board. This raises a concern that CEO/chairman duality, as a measure of CEO power, may not provide sufficient variations across the firms.

organizations, bringing valuable resources and information from outside. As a bridge or broker between the focal organization and the environment, such a CEO can enjoy considerable power within the organization (Burt, 1992). The power of an outsider CEO can positively influence the level of compensation for non-CEO executives.

A second aspect of resource dependence and informational advantage concerns the internal social networks of the company. Compared to a CEO who has been promoted internally after years of service, a CEO from the outside may be less liable to existing social commitments and dependence within the organization. An outsider CEO may have greater autonomy and feel less sympathetic about implementing compensation policies compared to an insider CEO involved in established social relationships with other members of the organization. As a result, CEOs from the outside tend to make more changes in structure, procedures, and people than insider CEOs (Helmich and Brown, 1972; Kanter, 1977). The power base of an outsider CEO can affect executive pay positively and the average worker's pay negatively, resulting in greater pay disparities. There is some evidence in the literature that outsider CEOs receive higher compensation than insider CEOs (Hambrick and Finkelstein, 1995; Wade, Porac, Pollock, and Graffin, 2006), but no studies have analyzed the impact of outsider CEOs on non-CEO executives' pay, average workers' pay, or on pay disparities between executives and workers.

Hypothesis 4. The presence of an outsider CEO increases executive pay.

Hypothesis 5. The presence of an outsider CEO decreases average workers' pay.

Hypothesis 6. The presence of an outsider CEO increases pay disparities between executives and average workers.

Conception of Control

Another perspective on organizations focuses on the cultural and cognitive aspects of the actors. Organizational theorists have argued that complex decisions in organizational contexts are made through behavioral rather than economic mechanisms (March and Simon, 1958). Under conditions of considerable complexity and uncertainty, which are common in management situations, rationality in decision-making is likely to be constrained, leaving room for the influence of the decision-maker's idiosyncrasies. Each decision-maker brings his or her own cognitive base and values that lead to selective perceptions of situations, interpretations of available information, assumptions about unknown factors, and predictions about future outcomes. As a result of such behavioral processes, organizational outcomes may reflect the cultural and cognitive characteristics of the decision makers.

A useful way to understand how a CEO's cultural and cognitive characteristics affect corporations is to apply Fligstein's (1990) theory of conceptions of control. Tracing the history of large American corporations in the twentieth century, Fligstein found the succession of distinct business principles, models, and worldviews that corresponded to the era's business strategies and organizational structures. Fligstein called the underlying worldview "the conception of control," which is "a perspective on how firms ought to solve their competitive problems and is collectively held and reflected in their organizational fields" (Fligstein, 1990:12). When each successive conception of control became problematic and lost its legitimacy in a new environment, there were proponents of innovative business visions and strategies. Once proven successful, the new conception of control diffused throughout organizations, and the advocates of the new model came into power. With functional expertise in the areas called for by the new

conception of control—for instance, in manufacturing, marketing, or finance—these advocates climbed rapidly in the corporate hierarchy.

It is important to note that the conception of control is theoretically not an opposite idea to managerial power discussed above. Indeed, a legitimatized conception of control provides power for the actors who espouse certain management styles or corporate strategies that are consistent with the dominant conception of control. Conversely, power and authority can serve to provide appearance of legitimacy and rationality to a certain conception of control. Fligstein (1987) showed that power shift between different business units within large firms is reflected in the pattern of changes over time in functional backgrounds of top executives, highlighting the role of power in changes in conceptions of control. Because of this intertwined relationship between power and the conception of control, this paper does not aim to contrast the two theories or test their relative strengths; instead, the two theories are used in formulating empirical hypotheses about the effects of CEO characteristics on pay disparities.

The functional tracks of a CEO's career serve as a good indicator of the dominant conception of control at the firm. Executives' prior training and experience in a certain area tend to shape cognitive styles, decision-making tools, and values, and have enduring effects throughout the career. Studies often use a CEO's functional background as a proxy for the conception of control (Davis and Stout, 1992; Zorn, 2004).

CEOs with finance backgrounds are of particular interest in terms of executive pay and workers' pay. Since the 1980s, creating shareholder value has been the dominant management principle of American corporations. Increasingly, there has been a widespread belief that corporations should be run, first and foremost, for the interests of shareholders, and that the best way to do this is to increase share prices (Lazonick and O'Sullivan, 2000; Davis, 2005; Zorn et

al., 2005). In this new business climate with such rhetoric and ideology, CEOs with finance backgrounds, compared to other CEOs, are regarded as the best fit for this new business climate (Fligstein, 2001). Often with MBAs in accounting, investment, and finance management, these CEOs have the greatest familiarity with portfolio management and financial manipulation techniques. With an aura of financial expertise, their leadership is legitimized in the eyes of investors, the board, and the public, who might then consider higher pay for executives to be worthwhile.

A CEO's background in finance might also have an influence on workers' pay. Because the primary goal is the maximization of shareholder wealth, a finance-oriented CEO tends to view labor as a cost to be minimized through wage cuts, reductions in benefits, or layoffs. Compared to CEOs with general backgrounds such as law or operations, finance-oriented CEOs may be more likely to curb wages at a lower level. In most corporations, compensation departments make recommendations about wages upward to a committee of the top executives, which typically includes the CEO, the CFO, and the top human-resources executive. A finance-oriented CEO might surround himself or herself with executives with similar backgrounds and perspectives. Through this way, the finance background of the CEO can negatively influence workers' pay. If firms dominated by the finance conception of the firm, with finance-oriented CEOs at the top, pay average workers less while granting executives higher pay, the result would be greater pay disparities. Although there are studies that found significant impact of CEO background on firm strategies and performance (Davis and Stout, 1992; Finkelstein, 1992; Fligstein and Brantley, 1992), no studies have addressed how CEO background can affect executives' pay, average workers' pay, or pay disparities within the firms.

Hypothesis 7. The presence of a CEO with a finance background increases executive pay.

Hypothesis 8. The presence of a CEO with a finance background decreases average workers'

    pay.

Hypothesis 9. The presence of a CEO with a finance background increases pay disparities

    between executives and average workers.

Data and Methods

Sample

To test the hypotheses, I constructed a sample of large U.S. corporations for the period of 1992-2005. The sampling frame came from the Standard and Poor's Compustat Industrial Annual files. I included companies from all industries except agriculture. For each year, I selected the largest (by sales) 1,000 firms. Sampling was repeated every year in order to minimize the survivorship bias. As the sales ranking changes every year, the firms included in the sample are not the same every year. Also, some firms go out of business and new firms come into existence during the 14-year period. Since a part of the analysis focuses on changes between two years, I excluded firms appearing only one year in the sample. Using the Compusat as the main dataset, I appended other information from various sources.

Dependent Variables

There are five dependent variables: (1) top five executives' base pay, including salary and bonus, (2) top five executives' total pay, including base pay, restricted stocks, and options, (3) average workers' pay, (4) pay disparities between executives (using base pay) and average workers, and (5) pay disparities between executives (using total pay) and average workers. In

14

regression models, I used logarithms of executive pay and average workers' pay. All dollar figures in this analysis are adjusted for inflation using the Consumer Price Index (CPI).

Executive compensation data came from Standard and Poor's Executive Compensation, also known as ExecuComp. ExecuComp provides compensation and demographic information about five highest paid executives for each company. In order to capture the level of compensation for the upper echelon in each organization, I used the average compensation of top five executives rather than the CEO alone. From this database, I constructed two measures of executive pay. The first is base compensation, which includes salary and bonus. The second is total compensation, which includes base compensation, long-term incentive payouts, restricted stock grants, and the Black-Scholes value of stock option grants. Figure 1 shows trends in these two measures.

(Figure 1 about here)

For the measure of average compensation for workers, most studies in wages and earnings relied on surveys drawn from probabilistic samples of households, such as the Current Population Survey (CPS). Although they are highly representative of the workforce, household surveys are inappropriate for this study since they lack information about the employer organizations. Compustat provides the total amount the company paid the workers each year. This measure reflects salaries and wages, benefits, and incentive compensation.[2] From this measure, I subtracted total amount of executive compensation (available from ExecuComp) in order to capture non-executive workers' pay. The average per capita annual compensation is

---

[2] Some companies excluded employee benefits from this measure. For these companies, I added industry-level averages of employee compensation, calculated from the annual Employer Costs for Employee Compensation (ECEC) tables of the Bureau of Labor Statistics' National Compensation Survey.

calculated by dividing the adjusted compensation measure by the total number of employees at

the company. The changes in average workers' pay are shown in Figure 1, together with the

changes in executive pay. While executive pay skyrocketed during the period of 1993-2005, the

average worker's pay has been relatively stagnant, suggesting a growth in pay disparities

between executives and average workers.

Not all companies in Compustat reported the employee compensation measure, posing a

problem of sample selection. Excluding the companies that did not report this measure, the

resulting sample consists of 388 firms. Companies that reported the compensation measure (thus

were included in the sample) tend to be larger in sales, assets, and the number of employees than

companies that did not report the measure (hence not included in the sample). However, the

difference in profitability (measured in returns on equity, ROE) is not significant between the

two groups of companies. These suggest that companies included in the sample may be a sample

of the largest—but not necessarily the most profitable—companies in the United States. To

check the validity of the sample, I compared the Compustat compensation measure to the one

from the March CPS. Figure 2 presents the trend in total annual compensation calculated from

the Compustat sample and the CPS. The dotted line in Figure 2 presents the CPS measure of total

annual compensation.[3] Next, I limit the CPS sample to full-time full-year workers employed at

large companies.[4] Finally, annual compensation calculated from the Compustat sample is

presented by the solid line in Figure 2. Although this is a crude way to compare two very

different sources of data, the three lines are roughly parallel to one another with a similar trend

---

[3] From the March CPS of 1991-2004, total annual income from wages and salaries were obtained. Next, using industry-average total compensation data from the Employer Costs for Employee Compensation (ECEC) tables, this measure was adjusted to average annual compensation.

[4] The CPS asked the respondents the total number of employees at the company they work for, and the biggest size they could choose was "more than 1,000 employees." I used this category to define large companies in the CPS sample. The average number of employees in the Compustat firms was 39,379.

over time. Particularly, the Compustat measure closely resembles the CPS measure from full-time full-year workers at large firms. This indicates that the average compensation measure constructed from Compustat is quite comparable to the CPS measure.

(Figure 2 about here)

Pay disparities were measured as the log differential between executive pay and average workers' pay, constructed in the ways described above. Intuitively, this is the logged ratio of pay between top five executives and the rest of the non-executive employees. Because the raw ratio of pay has an asymmetric distribution with some outliers, I used the log-transformed measure. Since I have two measures of executive pay (base pay and total pay), the pay disparities measures are also in two versions: pay disparities using base pay of executives and using total executive pay.

Independent Variables

CEO tenure and outsider-CEO status were constructed from ExecuComp, using the information on the year that the CEO was appointed as CEO and the year the CEO joined the company. Functional backgrounds of CEOs were collected from various archives, including *Who's Who in Finance and Industry, Who's Who Online, Mergent Online,* and *Forbes*. From these sources, eleven distinct backgrounds in education and career were initially coded: administration, banking, finance, insurance, journalism, legal, sales, marketing, medical, technical, and operations. I summarized them into four categories: (1) general, (2) finance, (3) technical (and medical), and (4) marketing (and sales) backgrounds. In the regression analysis, I

converted them into three dummy variables, omitting general background as the reference category.

Control Variables

The model controls for several other factors that affect executive pay and average worker's pay. To control for firm performance, I used both a market and an accounting measure. Market returns were computed by dividing the sum of the change in stock price and dividends paid during the year by the stock price at the beginning of the year. The accounting measure of profitability was return on equity (ROE). Return on assets (ROA) was not used, since assets, a component in ROA, is also entered in the regression, which raises a concern of multicollinearity.[5] When return on assets (ROA) was entered in the model, the results were similar to what is reported in this paper. These measures are from Compustat.

Many studies reported that firm size is positively associated with executive pay (Finkelstein and Hambrick, 1989), worker pay (Brown and Medoff, 1989), and dispersion of pay within organizations (Simon, 1957). Firm size was measured by log of total assets.

Corporate governance concerns the structures of power surrounding the issues of who controls publicly traded corporations. Three popular measures of governance are included in this analysis. First, proportion of executives on the board of directors measures the board's degree of independence in monitoring executive behaviors and setting the executive pay (Wade et al., 1990). Executives' membership on the board was identified in ExecuComp. Second, amount of shareholding by institutional investors is controlled for to measure the overall influence of large owners. The measure is calculated as a proportion of total institutional ownership to the

---

[5] The correlation coefficient between ROA and assets is -.34 (p< .01), while the correlation coefficient between ROE and assets is .01 (p>.05).

company's total outstanding shares. Finally, concentration of institutional ownership measures the political influence of large, powerful investors (Hartzell and Starks, 2003). I used Herfindahl index to measure the degree of ownership concentration. It is computed as the sum of the squared ownership stakes of all institutional investors for each company. The information about institutional shareholding came from Thomson Financial's 13f Institutional Holdings (CDA/Spectrum s34) data.

I controlled for several other variables that might affect worker's pay. Productivity was measured by sales per employee. The effect of new technologies on wages is controversial, as some argue that the introduction of new technologies—particularly computers and information technology (IT)—can be substituted for unskilled labor and at the same time raise the demand for skilled labor (Autor, Katz, and Krueger, 1998). I controlled for the amount of investment in computers, measured at the 2-digit industry level from the Bureau of Economic Analysis (BEA) database on private nonresidential fixed assets. Trade unions provide bargaining power to workers, so we expect that unionized firms pay workers more than non-unionized ones. Unionization rates were calculated from March CPS. Proportion of union members in each 2-digit industry was appended to the main Compustat sample. To control for the level of human capital among the workforce, average age and years of schooling of the workforce were calculated from the March CPS. Table 1 presents descriptive statistics. Table 2 shows correlation matrix for all variables included in the analysis.

(Tables 1, 2 about here)

Methods

The unit of analysis of the sample is the firm. For each firm, variables were measured annually as long as they appear in the sample. The final sample included 254 unique firms, representing 42 different 2-digit industries. One hundred and fourteen firms, or 45% of the firms, appeared in the sample every 14 years. Ninety one percent of the firms appeared at least five years. The panel data consist of 1,540 firm-years (1,287 in some models due to missing values).

The data have a nested structure, with annual observations for each firm nested within firms, which in turn are nested within industries. Firms in the same industries share the same market competition and regulatory environments. Since the company sample was drawn from many different industries, it is reasonable to suspect that firms are clustered by the industry. To analyze a 3-level hierarchical linear model (HLM), a random intercept model was estimated (Raudenbush and Bryk, 2001).[6] Specifically, the level-one model can be formulated as:

$$Y_{ijk} = \beta_{0jk} + \beta_1 X_{ijk} + \varepsilon_{ijk},$$ (1)

where Y_{ijk} is the dependent variable (i.e., executive pay, workers' pay, or pay disparities) of the ith year of the jth firm within the kth industry, X_{ijk} is a vector of independent variables, and ε_{ijk} is the level-one (i.e., firm-year-level) residual. For the intercept β_{ojk} in the jth firm in the kth industry,

$$\beta_{0jk} = \delta_{00k} + \zeta_{0jk},$$ (2)

---

[6] Models with firm fixed-effects were also estimated. The results were substantively similar to the ones reported here, but the estimates for the variables that were measured at the industry level were smaller and had lower efficiency than those from the hierarchical linear models.

where δ_{00k} is the average intercept in the kth industry and ζ_{0jk} is the level-two (i.e., firm-level) residual. For the level-three intercept,

$$\delta_{00k} = \gamma_{000} + \xi_{00k}, \tag{3}$$

where γ_{000} is the average intercept and ξ_{00k} is the level-three (i.e., industry-level) residual. Substituting (2) and (3) into (1), the three-level random intercept model is expressed as:

$$Y_{ijk} = \gamma_{000} + \gamma_{100}X_{ijk} + \xi_{00k} + \zeta_{0jk} + \varepsilon_{ijk}, \tag{4}$$

where $\gamma_{100} = \beta_1$. The coefficients were estimated using maximum likelihood.

Results

I estimated 3-level random intercept models separately for each of the five dependent variables. Table 3 presents the results. Each column corresponds to each dependent variable. In order to avoid reverse causality, the following independent variables were lagged one year: profitability (ROE), assets, total institutional ownership, institutional ownership concentration, productivity, and computer investment.

(Table 3 about here)

Before examining the hypothesis testing, it is useful to briefly review the results about the control variables. Firm performance (measured by market returns and ROE) was positively associated with executives' base pay but not with average workers' pay, thereby increasing the pay disparities between executives and workers. The association is not statistically significant for total executive pay. A large part of the total pay was equity-based compensation, such as stock grants and options, which aimed to tie managerial incentives to the financial performance of the firm. The results suggest that the granting of equity-based compensation was not entirely based on performance criteria. Perhaps popularity of equity-based compensation reflects a diffusion of the legitimatized practice across organizations in a fad-like fashion (Bebchuk and Grinstein, 2005; Strang and Soule, 1998).

Firm size, measured by total assets, was positively associated with both top-five executive pay and workers' pay. The size-pay relationship was stronger for executives than for average workers. This result in greater pay disparities in bigger firms, consistent with Simon's (1957) idea that larger firms with many hierarchical levels attempt to maintain adequate pay differentials between the levels.

Two variables about institutional ownership have significant effects on executive pay. A higher share of total institutional ownership was associated with higher executive pay, both in terms of base pay and total pay, and consequently with greater pay disparities. Institutional investors might demand stronger incentives and higher risk-taking from managers, who require a higher level of pay (Beatty and Zajac, 1994). However, firms with a greater concentration of institutional ownership had lower executive pay, consistent with Hartzell and Starks' (2003) argument that powerful institutional investors function as a monitor of managerial behaviors.

All other things being equal, productivity and unions were associated with higher pay for workers, while unionized firms paid executives less. Coefficients for computer investment show opposite signs for two measures of executive pay. The positive effect of computer investment on total executive pay might be related to the high valuation of stock options in computer-related industries. It is unclear how computer investment was negatively associated with executives' base pay. Firms with older workers paid executives and workers more, but the average age of workforce did not have any significant relationship with pay disparities. Average schooling of workforce was only associated with higher base pay for executives.

Turning to the hypothesis testing, the results show that most of CEO characteristics measured in this analysis had significant effects on top-five executive pay, average workers' pay, and the pay disparities, even after controlling for financial and operational characteristics of the firms. Drawing from the theory of power in organizations, Hypothesis 1 predicted a positive effect of CEO tenure, as a proxy for CEO power, on top-five executive compensation. The data support this hypothesis; CEO tenure was positively associated with top-five executive compensation, measured in both base pay and total pay. This finding supports the argument that CEO uses his or her own power to influence the subordinates' compensation. There is also support for Hypothesis 2; CEO tenure was negatively associated with average workers' pay, although the relationship is only marginally significant (p= .6). This suggests that CEO power is not only limited to the control over the board regarding executive compensation, but also influences the distribution of job rewards for the rest of the company. Combining these two hypotheses, Hypothesis 3 predicted that firms with longer CEO tenure have greater pay

disparities. The results strongly support Hypothesis 3; CEO tenure was significantly associated with greater pay disparities within the firms.[7]

As another measure of CEO power, a dummy variable for an outsider CEO was entered in the model. The results strongly support the hypotheses about outsider CEO status. Consistent with Hypothesis 4, firms with CEOs recruited from the outside paid top-five executives more than firms managed by internally promoted CEOs. Firms with outsider CEOs also paid workers less than firms with insider CEOs, supporting Hypothesis 5. As a result, firms managed by outsider CEOs had greater pay disparities between top-five executives and average workers, supporting Hypothesis 6. The results are consistent across two different measures of executive pay.

Drawing from behavioral model of managerial decision-making and the theory about the conception of control, I tested the effects of CEO backgrounds on pay. The hypotheses concerned the effect of finance backgrounds. Hypothesis 7 predicted that executive managers at a firm managed by a finance-oriented CEO enjoy a higher level of compensation due to the legitimized leadership of the TMT and the aura of CEO's financial expertise. However, the data do not support this hypothesis. Variables on CEO backgrounds were not statistically significant in both equations of executive pay. In Hypothesis 8, I predicted that finance-oriented CEOs are more likely to choose policies and implement changes to minimize labor cost, lowering workers' pay. There is support for this hypothesis. CEO background in finance was significantly associated with lower pay for average workers. CEO background in technical fields such as

---

[7] One could raise a concern that CEO tenure, as a measure of time, is positively correlated with time and that the effect of CEO tenure reflects the historical growth in executive pay rather than the effect of CEO power. However, CEO tenure is not correlated with the year variable in this dataset (Pearson's correlation coefficient: .02, p>.05). From 1992 to 2005, the average CEO tenure declined slightly from 8.0 to 7.4 years. When period dummies with 2-year intervals were included in the model in order to control for the period effect, the results did not substantially differ from the ones reported here.

engineering and medical sciences was also associated with lower worker pay, but the coefficient was marginally significant (p= .8). The results also indicate that firms with finance-oriented CEOs have greater pay disparities, supporting Hypothesis 9. The coefficient for finance background was statistically significant in the equation for pay disparities using base executive pay, not in the equation for pay disparities using total executive pay.[8]

(Table 4 about here)

The analysis demonstrated that CEO characteristics play a significant role in determining executive pay, average workers' pay, and pay disparities within the firms. To examine the economic impact of the CEO effects, it is useful to calculate the magnitudes of independent variables' effects in dollar terms. Table 4 presents predicted changes in dependent variables (executive pay and workers' pay) when independent variables change.[9] I included two control variables that were strongly significant in Table 3: market returns and assets. The main focus is on the effects of three independent variables indicating CEO power and the conception of control: CEO tenure, outsider CEO, and finance-oriented CEO. The first column in Table 4 lists coefficient estimates from Table 3. Only the coefficients that were significant at least at the 10% level are shown here. The second column presents percent changes in dependent variables (i.e., top-five executives' base pay, total pay, and average workers' pay) when the independent variables listed on the left increase by one unit. Since the regression models had dependent variables in logarithms, the percent changes were calculated as $[\exp(\beta)-1]\times100$, where β is

---

[8] None of the two-way interaction terms between CEO tenure, outsider CEO, and CEO background were significant at the 5% level.
[9] Magnitudes of independent variables' effects were not calculated for the models estimating pay disparities because such models have logged ratios, not dollar amounts, as dependent variables.

the coefficient estimate. For independent variables measured continuously (i.e., market returns, assets, and CEO tenure), I multiplied these percent changes by the standard deviation of independent variables in order to obtain percent changes in dependent variables when independent variables increase by one standard deviation. These figures are presented on the third column of Table 4. Finally, the last column shows the changes in dependent variables in dollar terms when the independent variables change. For continuous independent variables, it refers to a one-standard-deviation increase in the independent variables. For dichotomous independent variables, such as outsider CEO and finance CEO, it is equal to the differences in dependent variables between two groups: for example, the difference in executive pay between firms with an outsider CEO and firms with an insider CEO.

This calculation reveals a substantial impact on pay due to the changes in firm or CEO characteristics. Starting with the model predicting top-five executives' base pay, a one-standard-deviation increase in market returns increases the average compensation for top-five executives by about 5 percent, or $77,240. More strikingly, an increase of one standard deviation in assets increases the executives' pay by over 50 percent, or $721,638. This echoes the findings in other studies that documented a strong relationship between executive pay and firm size (Finkelstein and Hambrick, 1989; Jensen and Murphy, 1990; Gabaix and Landier, 2006).

CEO characteristics also have a substantial impact on compensation for top-five executives. When CEO tenure increases by one standard deviation, or about 6.4 years, the average compensation for top-five executives increases by 4 percent, or $60,397. Though it is smaller than the economic variables' effects, this is by no means a trivial impact. This suggests that a non-CEO executive can expect to increase their income by $60,397 by switching to a firm where the CEO has about 6 more years of tenure, holding everything else equal. Another striking

finding is that top-five executives working with an outsider CEO receive about 17 percent, or $241,411, more in pay than executives working with an insider CEO. The magnitude of this effect is much greater than that of market returns.

The second panel of Table 4 presents the magnitudes of effects on total executive pay including equity-based compensation. These magnitudes are even greater than above. A one-standard-deviation increase in assets raises the average compensation for top-five executives by more than two and a half million dollars. A one-standard-deviation increase in CEO tenure increases the top-five executive compensation by $121,280. Finally, firms with an outsider CEO pay executives over a million dollars more on average than firms with an insider CEO do.

Turning to the effects of CEO characteristics on average workers' pay, the results suggest that CEO's power and the functional background have a tangible impact on rank-and-file workers. A one-standard-deviation increase in CEO tenure lowers the workers' pay by $802. Although this appears a small amount compared to the magnitudes of the CEO effects on executive pay, this $802 change might be a substantial amount for average workers who earn a fraction of what executives get. The impact of CEO's outsider status is even greater. Workers at firms managed by an outsider CEO receive $3,443 less than workers at firms managed by an insider CEO. Also, workers at firms managed by a finance-oriented CEO earn $3,212 less than workers at firms managed by a CEO with a general background. For workers who earn $66,321 (the sample mean) on average, a $3,000 differential is substantial.

Conclusions

This paper examined pay disparities between executive managers and rank-and-file workers within large U.S. corporations. While most studies in the literature on income inequality examined pay at individual level, this paper analyzed inequality at the level of firms. Based on the view that organizations reflect the nature of the social and political relationships in which the top decision-makers are embedded, I focused on the role of CEOs in shaping the pay structure within the firms. As the most visible and influential decision-makers in the firm, CEOs' power in the organization and the cultural and cognitive tendencies affect the firm strategies, policies, and culture, which in turn determines the distribution of job rewards within the firms. Drawing from the theories of power and the conception of control, I hypothesized that CEOs' tenure, outsider status, and functional backgrounds affect pay disparities between executive managers and the rank-and-file workers.

Using a longitudinal sample of 254 largest U.S. corporations, I demonstrated that CEO characteristics had significant effects on pay disparities within the firms. Consistent with the idea that powerful CEOs can influence the pay determination for executives and rank-and-file workers, variables that measure the degree of CEO power were positively associated with top-five executive pay and negatively with average workers' pay, resulting in greater pay disparities. More specifically, the results from the analysis suggested that firms managed by CEOs with longer tenure paid executives more, paid workers less, and had greater pay disparities compared to firms with shorter-tenure CEOs. Similarly, firms with CEOs recruited from outside the organization paid executives more, paid workers less, and had greater pay disparities compared to firms where CEOs were internally promoted. There is also support for the effects of the conception of control on the pay disparities. The results suggest that firms dominated by finance conception of control, with CEOs in finance background, paid workers less and had greater pay

disparities, compared to firms with CEOs in general background. These CEO effects were significant in the models controlling for the economic and operational characteristics of the firms and the industries. The analysis also demonstrated that the effect of CEO characteristics had a substantial monetary impact on compensation. For example, compared to firms with an insider CEO, firms managed by an outsider CEO paid top-five executives on average one million dollars more, controlling for a number of other factors. Such firms also paid $3,000 less to the average workers, leading to greater pay disparities between the executives and the workers.

The findings of this study highlight the role of CEOs in shaping the processes and the outcomes of the pay distribution within the firms. Studies have documented that CEOs use political and cultural processes to affect their own compensation (e.g., Finkelstein and Hambrick, 1989; Main, O'Reilly, and Wade, 1995), but few have investigated how CEOs' influence goes beyond his or her own pay. This situation contrasts with the public's attention to heroic CEOs. The media often maintains the view that CEOs are the single most important factor in determining the fate of the companies that they are managing. Business press often feature stories about celebrity CEOs who face formidable challenges and turn the company around. Also, CEOs' impact on compensation policies and pay structure is often publicly discussed within the business community.[10] Beyond anecdotal examples, CEOs' role in influencing the pay structure has not been systematically studied. This paper's contribution to the literature on top management, leadership, and corporate governance is that it empirically demonstrated the effects of CEO's power and management styles on compensation for a wide range of members in the organizations. In an attempt to quantify the impact of CEO characteristics on other employees'

---

[10] A famous example is People Express, an airline company which had a spectacular growth in the 1980s. Frequently discussed in MBA classes, the company was managed by a CEO who had a strong conviction about worker's self-management and compressed pay structure within the firm (Rimer, 1984). Another popular example is Ben and Jerry's Homemade Inc., which is widely known for its quirky founders who implemented a five-to-one ratio of salaries within the company (Larson, 1988).

pay, the analysis revealed that the consequence of CEO power and functional background could amount to over a million dollars in some cases.

The findings also have some significant implications about the growing income inequality in the U.S. economy in recent decades. Many studies, predominantly in micro-economics, have analyzed the causes of the rise in wage inequality, but few studies have investigated the sources of inequality at the level of work organizations. In organizational and management studies, on the other hand, the issue of inequality has remained marginal, despite the fact that the organizational dynamics and processes tend to have a direct impact on how job rewards are distributed across different groups of workers. This study fills in the gap in the literature and demonstrates that an organization-level analysis is useful in studying inequality and can reveal previously unexplored mechanisms. More specifically, the results suggest that firms managed with powerful CEOs and firms dominated by the finance conception of control paid the top executives more, while reducing the rank-and-file workers' pay. In these firms, CEOs used their formal power and institutional legitimacy to justify the corporate policies that distributed organizational resources more towards top executives and away from the workers. If such corporate strategies have become increasingly more popular across the firms during the past couple decades, it might have contributed to the widening of pay disparities between corporate executives and average workers and consequently to the growth of income inequality in the U.S. economy.

In this regard, the sample used in this paper reveals some trends worth noting. First, during the period of 1993 to 2005, outsider CEOs have become increasingly more popular among U.S. corporations. In 1993, only 2 percent of the firms in this sample had a CEO from outside the organization. By 2005, 11 percent had an outsider CEO. This reflects the general

trend of increasing managerial turnover and outside succession (Huson, Parrino, and Starks, 2001; Frydman, 2005). Second, the data show that the percentage of firms managed by finance-oriented CEOs has steadily increased from 14 percent in 1993 to 23 percent in 2005. This is consistent with the argument that during the past couple decades there has been a shift in dominant management styles and business principles. According to this new conception of control, the only legitimate purpose of a corporation is to maximize shareholder value, and the goal of top managers is to create shareholder value by increasing share prices (Lazonick and O'Sullivan, 2000; Fligstein and Shin, 2007). As the new conception of control came to dominate, it is expected that the proponents of the new view are more likely to climb up the corporate leadership (Fligstein, 1990). If the increasing prevalence of finance-oriented CEOs reflects the emergence of the new conception of control, then an argument can be made that links the shift in conceptions of control and the emergence of shareholder value ideology to the growth in income inequality. Future research that investigates the historical changes in corporate governance, top management, and income inequality can shed light on the organizational and institutional sources of income inequality in the United States.

References

Abowd, John M., John Haltiwanger, and Julia Lane, 2004. Integrated Longitudinal Employer-Employee Data for the United States. *American Economic Review* 94 (2), 224–229.

Autor, David H., Lawrence F. Katz, and Alan B. Krueger. 1998. "Computing Inequality: Have Computers Changed the Labor Market?" *Quarterly Journal of Economics* 113(4): 1169-1213.

Baron, James N., and William T. Bielby. 1980. "Bringing the Firms Back In: Stratification, Segmentation, and the Organization of Work." *American Sociological Review* 45: 737-765.

Beatty, Randolph P., and Edward J. Zajac. 1994. "Managerial Incentives, Monitoring, and Risk Bearing: A Study of Executive Compensation, Ownership, and Board Structure in Initial Public Offerings." *Administrative Science Quarterly* 39: 313-335.

Bebchuk, Lucian Arye, and Jesse M. Fried. 2004. *Pay without Performance: The Unfulfilled Promise of Executive Compensation*. Cambridge, MA: Harvard University Press.

Bebchuk, Lucian, and Yaniv Grinstein. 2005. "The Growth of Executive Pay." *Oxford Review of Economic Policy* 21(2): 283-303.

Blair, Margaret M. 1995. *Ownership and Control*. Washington, DC: Brookings Institution.

Brown, Charles, and James Medoff. 1989. "The Employer Size-Wage Effect." *Journal of Political Economy* 97: 1027-59.

Burt, Ronald S. 1983. *Corporate Profits and Cooptation*. New York: Academic Press.

_____. 1992. *Structural Holes: The Social Structure of Competition.* Cambridge, MA: Harvard University Press.

Carpenter, Mason A., and W. M. G. Sanders. 2002. "Top Management Team Compensation: The

    Missing Link Between CEO Pay and Firm Performance?" *Strategic Management Journal*

    23: 367-375.

Crystal, Graef. S. 1991. *In Search of Excess*. New York: Norton.

Davis, Gerald F. 2005. "New Directions in Corporate Governance." *Annual Review of Sociology*

    31: 143-162.

Davis, Gerald F., and Suzanne K. Stout. 1992. "Organization Theory and the Market for

    Corporate Control: A Dynamic Analysis of the Characteristics of Large Takeover Targets,

    1980-1990." *Administrative Science Quarterly* 37: 605-633.

Dew-Becker, Ian, and Robert J. Gordon. 2005. "Where Did the Productivity Growth Go?

    Inflation Dynamics and the Distribution of Income." *Brookings Papers on Economic*

    Activity 2: 67-150.

Elhagrashy, Galal M., J. Richard Harrison, and Rogene A. Buchholz. 1999. "Power and Pay: The

    Politics of CEO Compensation." *Journal of Management and Governance* 2: 309-332.

Emerson, Richard M. 1962. "Power-Dependence Relations." *American Sociological Review* 27:

    31-41.

Finkelstein, Sydney. 1992. "Power in Top Management Teams: Dimensions, Measurement, and

    Validation." *Academy of Management Journal* 35(3): 505-538.

Finkelstein, Sydney, and Donald C. Hambrick. 1989. "Chief Executive Compensation: A Study

    of the Intersection of Markets and Political Processes." *Strategic Management Journal* 10:

    121-134.

Fligstein, Neil. 1987. "The Intraorganizational Power Struggle: Rise of Finance Personnel to Top Leadership in Large Corporations, 1919-1979." *American Sociological Review* 52(1): 44-58.

_____. 1990. *The Transformation of Corporate Control*. Cambridge, MA: Harvard University Press.

_____. 2001. *The Architecture of Markets: An Economic Sociology of Twenty-First-Century Capitalist Societies*. Princeton, NJ: Princeton University Press.

Fligstein, Neil, and Peter Brantley. 1992. "Bank Control, Owner Control, or Organizational Dynamics: Who Controls the large Modern Corporation?" *American Journal of Sociology* 98(2): 280-307.

Fligstein, Neil, and Taekjin Shin. 2007. "Shareholder Value and the Transformation of the U.S. Economy, 1984-2000." *Sociological Forum* 22(4): 399-424.

Frydman, Carola. 2005. "Rising Through the Ranks: The Evolution of the Market for Corporate Executives, 1936-2003." Working Paper, MIT Sloan School of Management.

Gabaix, Xavier, and Augustin Landier. 2006. "Why Has CEO Pay Increased So Much?" National Bureau of Economic Research Working Paper 12365.

Greve, Henrich R., and Hitoshi Mitsuhashi. 2007. "Power and Glory: Concentrated Power in Top Management Teams." *Organization Studies* 28(8): 1197-1221.

Hambrick, Donald C., and Phyllis A. Mason. 1984. "Upper Echelons: The Organization as a Reflection of Its Top Managers." *Academy of Management Review* 9(2): 193-206.

Hartzell, Jay C., and Laura T. Starks. 2003. "Institutional Investors and Executive Compensation." *Journal of Finance* 58: 2351-2374.

Helmich, Donald L., and Warren B. Brown. 1972. "Successor Type and Organizational Change in the Corporate Enterprise." *Administrative Science Quarterly* 17(3): 371-381.

Hill, Charles W. L., and Phillip Phan. 1991. "CEO Tenure as a Determinant of CEO Pay." *Academy of Management Journal* 34(3): 707-717.

Huson, Mark R., Robert Parrino, and Laura T. Starks. 2001. "Internal Monitoring Mechanisms and CEO Turnover: A Long-Term Perspective." *Journal of Finance* 56(6): 2265-2297.

Jensen, Michael C., and Kevin J. Murphy. 1990. "Performance and Top Management Incentives." *Journal of Political Economy* 98: 225-264.

Kabanoff, Boris. "Equity, Equality, Power, and Conflict." *Academy of Management Review* 16(2): 416-441.

Kanter, Rosabeth Moss. 1977. *Men and Women of the Corporation*. New York: Basic Books.

Larson, Erik. 1988. "Forever Young: Ben and Jerry's Quest to Keep Their Company's Spirit Alive as the Business Grows." *Inc.* July 1988.

Lazonick, William, and Mary O'Sullivan. 2000. "Maximizing Shareholder Value: A New Ideology for Corporate Governance." *Economy and Society* 29(1): 13-35.

March, James G., and Herbert A. Simon. 1958. *Organizations*. New York: Wiley.

Main, Brian G. M., Charles A. O'Reilly, and James Wade. 1995. "The CEO, the Board of Directors and Executive Compensation: Economic and Psychological Perspectives." *Industrial and Corporate Change* 4(2): 293-332.

Morris, Martina, and Bruce Western. 1999. "Inequality in Earnings at the Close of the Twentieth Century." *Annual Review of Sociology* 25:623-57.

Murphy, Kevin J. 1999. "Executive Compensation." in *Handbook of Labor Economics* 3: 2485-2563.

Pfeffer, Jeffrey, and Nancy Langton. 1988. "Wage Inequality and the Organization of Work: The
  Case of Academic Departments." *Administrative Science Quarterly* 33: 588-606.

Pfeffer, Jeffrey, and Gerald R. Salancik. 1978. *The External Control of Organizations*. New
  York: Harper & Row.

Piketty, Thomas, and Emmanuel Saez. 2007. "Income Inequality in the United States, 1913-
  2002." in *Top Incomes over the Twentieth Century: A Contrast between European and
  English-Speaking Countries,* edited by A. B. Atkinson and Thomas Piketty. New York:
  Oxford University Press.

Raudenbush, Stephen W., and Anthony S. Bryk. 2001. *Hierarchical Linear Models:
  Applications and Data Analysis Methods*. Second Edition. Thousand Oaks, CA: Sage.

Rechner, Paula, and Dan R. Dalton. 1991. "CEO Duality and Organizational Performance: A
  Longitudinal Analysis." *Strategic Management Journal* 12: 155-160.

Rimer, Sara. 1984. "The Airline That Shook the Industry." *New York Times* December 23, 1984.

Simon, Herbert A. 1957. "The Compensation of Executives." *Sociometry* 20(1): 32-35.

Sørensen, Jesper B., and Olav Sorenson. 2007. "Corporate Demography and Income Inequality."
  American Sociological Review 72: 766-783.

Strang, David, and Sarah A. Soule. 1998. "Diffusion in Organizations and Social Movements:
  From Hybrid Corn to Poison Pills." *Annual Review of Sociology* 24: 265-290.

Wade, James, Charles A. O'Reilly, and Ike Chandratat. 1990. "Golden Parachutes: CEOs and the
  Exercise of Social Influence." *Administrative Science Quarterly* 35: 587-603.

Wade, James B., Joseph F. Porac, Timothy G. Pollock, and Scott D. Graffin. 2006. "The Burden
  of Celebrity: The Impact of CEO Certification Contests on CEO Pay and Performance."
  Academy of Management Journal 49(4): 643-660.

Wade, James B., Charles A. O'Reilly, and Timothy G. Pollock. 2006. "Overpaid CEOs and Underpaid Managers: Fairness and Executive Compensation." *Organization Science* 17(5): 527-544.

Zorn, Dirk M. 2004. "Here a Chief, There a Chief: The Rise of the CFO in the American Firm." *American Sociological Review* 69: 345-364.

Zorn, Dirk, Frank Dobbin, Julian Dierkes, and Man-Shan Kwok. 2005. "Managing Investors: How Financial Markets Reshaped the American Firm." in *The Sociology of Financial Markets*, edited by Karin Knorr Cetina and Alex Preda. New York: Oxford University Press.

Figure 1. Trends in Executive Pay and Average Workers' Pay

Y-axis: Total annual compensation ($1,000) with values 0, 500, 1,000, 1,500, 2,000, 2,500, 3,000, 3,500, 4,000, 4,500, 5,000

X-axis: 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005

Line labels: Executive pay (total pay), Executive pay (base pay), Average worker's pay

Legend: ——X—— Average worker's pay   ▬▬▬ Executive pay (base pay)   ——— Executive pay (total pay)
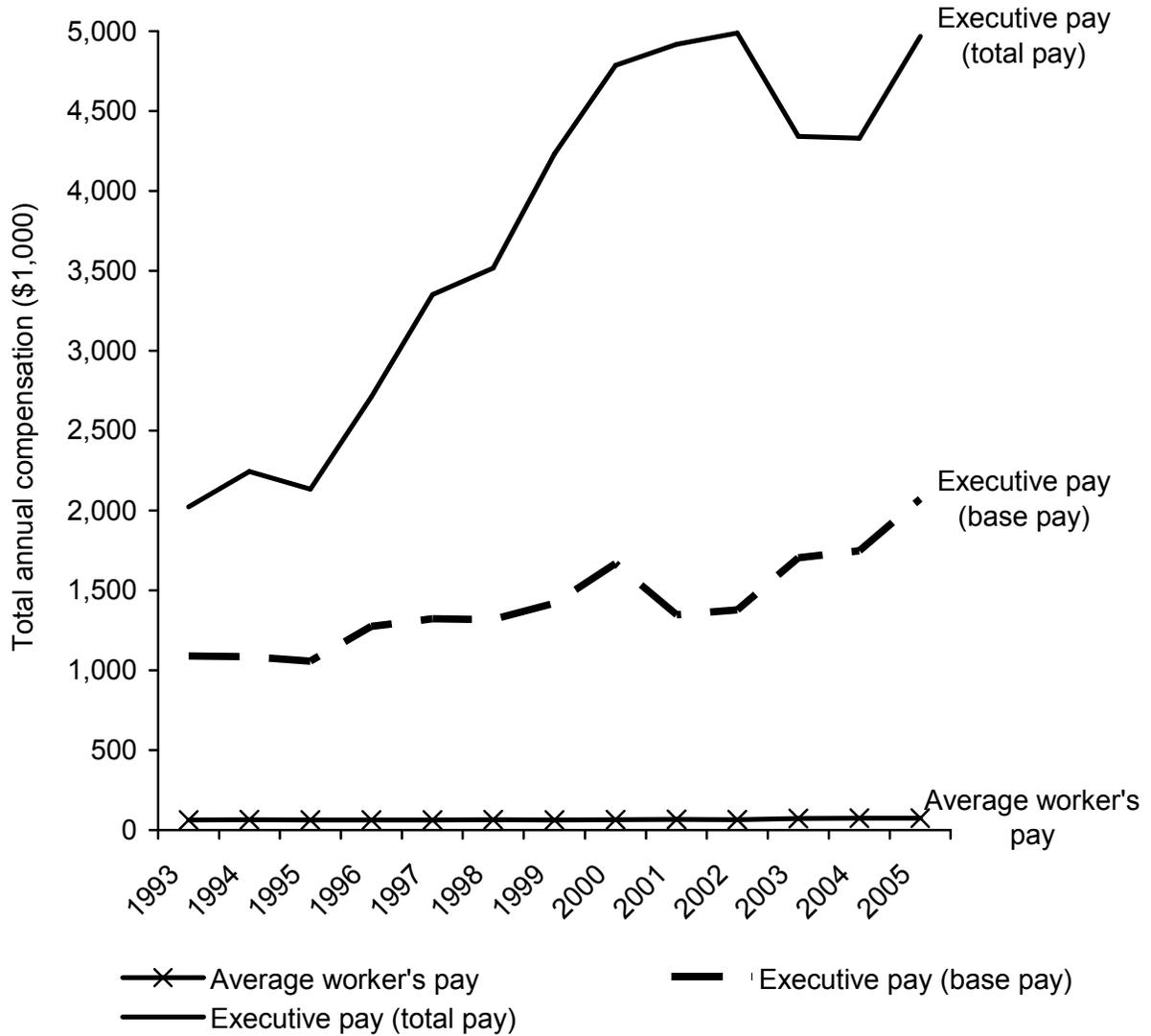
Figure 2. Trends in Annual Compensation of Workers

Legend:
- ▪ ▪ ▪ CPS , all workers
- ─ ─ CPS, FTFY large firms
- ━━ Compustat
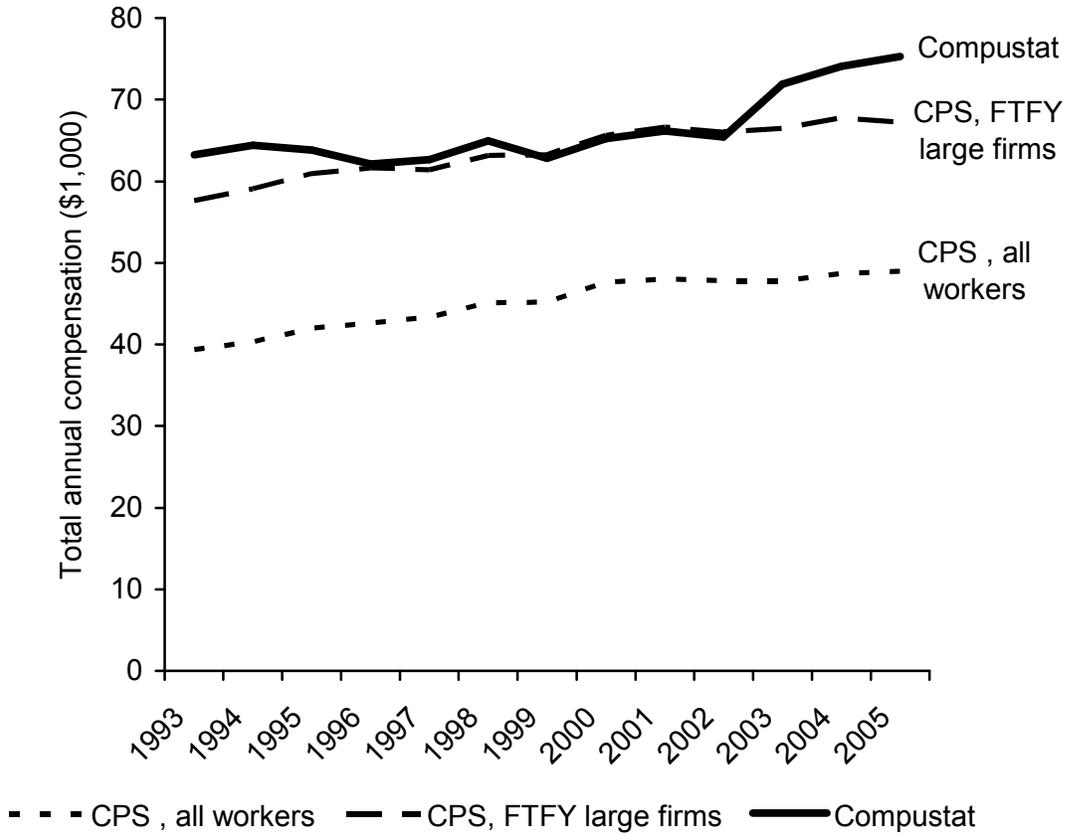
Table 1. Descriptive Statistics

	Mean	S.D.	Min	Max	%	N
Log of executive pay (base pay only)	6.96	0.69	5.42	9.94		
Log of executive pay (total pay)	7.81	0.88	5.54	11.67		
Log of annual average workers' pay	4.05	0.54	1.83	6.04		
Pay disparities (using base pay)	2.94	0.68	1.19	5.90		
Pay disparities (using total pay)	3.79	0.85	1.29	7.43		
Market returns	0.06	0.35	-0.99	2.13		
ROE (lagged)	0.12	1.23	-35.57	12.74		
Log of assets (lagged)	9.47	1.60	5.02	13.87		
Proportion of executives on board	0.41	0.22	0.00	1.00		
Total institutional ownership (lagged)	0.58	0.17	0.01	1.00		
Institutional ownership concentration (lagged)	0.04	0.03	0.01	0.45		
Productivity (lagged)	0.34	0.47	0.02	8.56		
Log of investment in computers (industry-level, lagged)	5.29	1.51	0.23	8.44		
Proportion of workers unionized (industry-level)	0.14	0.17	0.00	0.85		
Average age of workforce (industry-level)	38.98	2.44	29.24	45.46		
Average schooling of workforce (industry-level)	13.63	0.88	11.19	15.55		
CEO tenure (year)	7.76	6.40	0.00	43.00		
Outsider CEO (dummy)	0.07	0.25	0.00	1.00		
CEO background						
General background					63.05%	971
Finance background					16.56%	255
Technical background					12.08%	186
Marketing background					8.31%	128
N						1,540

Table 2. Correlation Matrix

Variables	1	2	3	4	5	6	7
1. Executive pay (base)	1.000						
2. Executive pay (total pay)	.817 *	1.000					
3. Average workers' pay	.447 *	.373 *	1.000				
4. Pay gap (using base pay)	.707 *	.572 *	-.317 *	1.000			
5. Pay gap (using total pay)	.575 *	.811 *	-.240 *	.799 *	1.000		
6. Market returns	.074 *	-.001	-.009	.074 *	.000	1.000	
7. ROE	.058 *	.031	-.011	.072 *	.040	.025	1.000
8. Log of assets	.597 *	.595 *	.404 *	.315 *	.367 *	-.007	.011
9. Executives on board	.123 *	.008	.091 *	.062 *	-.053	-.016	.000
10. Institutional ownership	.108 *	.176 *	-.056 *	.177 *	.246 *	-.039	-.050
11. Ownership concentration	-.175 *	-.190 *	.044	-.216 *	-.220 *	.029	.008
12. Productivity	.161 *	.136 *	.375 *	-.065 *	-.057 *	.007	.015
13. Investment in computers	-.012	.100 *	.370 *	-.307 *	-.123 *	-.030	-.032
14. Proportion unionized	-.291 *	-.194 *	.069 *	-.348 *	-.218 *	-.033	-.024
15. Age of workforce	-.072 *	-.013	.417 *	-.369 *	-.231 *	-.039	-.030
16. Schooling of workforce	.380 *	.331 *	.441 *	.053	.063 *	.017	-.021
17. CEO tenure	-.025	-.062 *	-.075 *	.027	-.021	.021	.026
18. Outsider CEO	.096 *	.116 *	-.023	.104 *	.109 *	-.010	.010
19. Finance background	.055 *	.062 *	-.089 *	.131 *	.122 *	.018	-.027
20. Technical background	-.062 *	-.070 *	.088 *	-.136 *	-.132 *	-.001	.001
21. Marketing background	.037	.028	.097 *	-.041	-.029	-.003	.018

	8	9	10	11	12	13	14
8. Log of assets	1.000						
9. Executives on board	-.047	1.000					
10. Institutional ownership	-.110 *	-.133 *	1.000				
11. Ownership concentration	-.092 *	-.041	-.135 *	1.000			
12. Productivity	.189 *	-.008	.001	.003	1.000		
13. Investment in computers	.363 *	-.173 *	-.010	.049	.089 *	1.000	
14. Proportion unionized	-.153 *	-.112 *	-.004	.028	-.031	.283 *	1.000
15. Age of workforce	-.076 *	-.109 *	.127 *	-.008	.099 *	.405 *	.590 *
16. Schooling of workforce	.353 *	.031	.071 *	.013	.102 *	.429 *	-.397 *
17. CEO tenure	-.094 *	.059 *	.016	-.046	.023	-.070 *	-.096 *
18. Outsider CEO	.034	-.097 *	.009	-.023	-.027	-.031	-.061 *
19. Finance background	.073 *	-.022	.085 *	.041	.024	-.089 *	-.081 *
20. Technical background	.014	.010	-.044	-.063 *	.063 *	.142 *	.182 *
21. Marketing background	-.065 *	.114 *	-.064 *	-.032	-.020	-.010	.091 *

	15	16	17	18	19	20	21
15. Age of workforce	1.000						
16. Schooling of workforce	.086 *	1.000					
17. CEO tenure	-.054 *	.025	1.000				
18. Outsider CEO	.048	.037	-.139 *	1.000			
19. Finance background	-.081 *	.070 *	.113 *	-.034	1.000		
20. Technical background	.238 *	-.045	-.093 *	-.035	-.165 *	1.000	
21. Marketing background	.012	-.107 *	-.044	-.014	-.134 *	-.112 *	1.000

* $p < .05$.

Table 3. Hierarchical Linear Models of Executive Pay (Base Pay and Total Pay), Average Workers' Pay, and Pay Disparities (Using Base Pay and Total Pay)

	Executive pay (base pay)		Executive pay (total pay)		Worker's pay		Pay disparities (using base pay)		Pay disparities (using total pay)	
Market returns	.145	(.022) **	.037	(.034)	.007	(.011)	.117	(.025) **	.012	(.038)
ROE	.017	(.006) **	.002	(.010)	.0004	(.003)	.016	(.007) *	.001	(.010)
Assets	.274	(.016) **	.358	(.023) **	.096	(.012) **	.196	(.020) **	.282	(.028) **
Proportion of executives on board	.057	(.056)	.147	(.083) +	-.004	(.031)	.044	(.066)	.119	(.096)
Total institutional ownership	.395	(.088) **	.686	(.131) **	.013	(.053)	.344	(.108) **	.499	(.156) **
Institutional ownership concentration	-1.244	(.366) **	-1.843	(.545) **	.071	(.197)	-1.624	(.413) **	-2.466	(.602) **
Productivity	.042	(.031)	.069	(.044)	.180	(.029) **	-.065	(.051)	-.007	(.070)
Investment in computers	-.073	(.020) **	.091	(.032) **	-.018	(.014)	-.022	(.028)	.208	(.043) **
Proportion unionized	-.335	(.160) *	-.447	(.256) +	.218	(.104) *	-.422	(.220) +	-.340	(.334)
Average age of workforce	.023	(.008) **	.050	(.013) **	.035	(.005) **	-.008	(.011)	.027	(.017)
Average schooling of workforce	.086	(.036) *	.026	(.059)	.003	(.028)	-.013	(.056)	-.109	(.086)
CEO tenure	.007	(.002) **	.005	(.003) +	-.002	(.001) +	.008	(.002) **	.008	(.003) *
Outsider CEO	.156	(.046) **	.238	(.069) **	-.053	(.024) *	.218	(.053) **	.292	(.078) **
CEO background (omitted: general background)										
Finance background	.029	(.035)	-.040	(.052)	-.050	(.019) **	.102	(.039) **	.039	(.057)
Technical background	-.039	(.049)	-.072	(.073)	-.051	(.029) +	-.025	(.060)	-.024	(.087)
Marketing background	.022	(.044)	.019	(.066)	-.023	(.022)	.033	(.049)	.025	(.071)
Constant	2.507	(.487) **	1.410	(.781) +	1.648	(.349) **	1.645	(.699) *	.441	(1.067)
N	1,540		1,540		1,287		1,287		1,287	

Note: Standard errors are in parentheses.

** p< .01, * p< .05, + p< .10 (two-tailed tests)

Table 4. Magnitidue of Independent Variables' Effects on Executive Pay (Base Pay and Total Pay) and Average Workers' Pay

	β	% change in pay per unit increase in X [a]	% change in pay per 1 S.D. increase in X [b]	$ change in pay per 1 S.D. (or unit) increase in X [c]
Model: Executive pay (base pay)				
Market returns	.145	15.65%	5.42%	$77,240.36
Assets	.274	31.50%	50.63%	$721,638.99
CEO tenure	.007	0.66%	4.24%	$60,397.29
Outsider CEO (dummy)	.156	16.94%	--	$241,411.08
Finance CEO (dummy)	n.s. [d]	--	--	--
Model: Executive pay (total pay)				
Market returns	n.s. [d]	--	--	--
Assets	.358	43.02%	69.15%	$2,599,353.61
CEO tenure	.005	0.50%	3.23%	$121,280.63
Outsider CEO (dummy)	.238	26.93%	--	$1,012,276.09
Finance CEO (dummy)	n.s. [d]	--	--	--
Model: Worker's pay				
Market returns	n.s. [d]	--	--	--
Assets	n.s. [d]	--	--	--
CEO tenure	-.002	-0.19%	-1.21%	-$802.17
Outsider CEO (dummy)	-.053	-5.19%	--	-$3,443.15
Finance CEO (dummy)	-.050	-4.84%	--	-$3,212.74

[a] $[\exp(\beta)-1] \times 100$.

[b] This column applies only to independent variables measured continuously (i.e., market returns, assets, and CEO tenure).

[c] For independent variables measured continuously (i.e., market returns, assets, and CEO tenure), this column refers to dollar changes in pay per one-standard-deviation increase in the independent variables. For dichotomous independent variables (outsider CEO, finance CEO), this column refers to dollar differences in pay between two groups (e.g., outsider vs. insider CEOs).

[d] Not significant at the 10% level.