CEO Incentives—It's Not How Much You Pay, But How

Michael C. Jensen
Harvard Business School
Mjensen@hbs.edu

And

Kevin J. Murphy
University of Rochester
kjmurphy@usc.edu

ABSTRACT

Paying top executives "better" would eventually mean paying them more. The arrival of spring means yet another round in the national debate over executive compensation. Soon the business press will trumpet answers to the questions it asks every year: Who were the highest paid CEOs? How many executives made more than a million dollars? Who received the biggest raises? Political figures, union leaders, and consumer activists will issue now-familiar denunciations of executive salaries and urge that directors curb top-level pay in the interests of social equity and statesmanship.

The critics have it wrong. There are serious problems with CEO compensation, but "excessive" pay is not the biggest issue. The relentless focus on how much CEOs are paid diverts public attention from the real problem—how CEOs are paid. In most publicly held companies, the compensation of top executives is virtually independent of performance. On average, corporate America pays its most important leaders like bureaucrats. Is it any wonder then that so many CEOs act like bureaucrats rather than the value-maximizing entrepreneurs companies need to enhance their standing in world markets?

We recently completed an in-depth statistical analysis of executive compensation. Our study incorporates data on thousands of CEOs spanning five decades. The base sample consists of information on salaries and bonuses for 2,505 CEOs in 1,400 publicly held companies from 1974 through 1988. We also collected data on stock options and stock ownership for CEOs of the 430 largest publicly held companies in 1988. In addition, we drew on compensation data for executives at more than 700 public companies for the period 1934 through 1938.

Keywords: incentives, compensation, salaries, bonuses, CEO, performance based pay, stock options

Harvard Business Review, May-June 1990, No. 3, pp 138-153.

also published in
F*oundations of Organizational Strategy*, Michael C. Jensen, Harvard University Press, 1998.

CEO INCENTIVES—IT'S NOT HOW MUCH YOU PAY, BUT HOW

By Michael C. Jensen and Kevin J. Murphy*
Harvard Business Review, May-June 1990, No. 3, pp 138-153.

The arrival of spring means yet another round in the national debate over executive compensation. Soon the business press will trumpet answers to the questions it asks every year: Who were the highest paid CEOs? How many executives made more than a million dollars? Who received the biggest raises? Political figures, union leaders, and consumer activists will issue now-familiar denunciations of executive salaries and urge that directors curb top-level pay in the interests of social equity and statesmanship.

The critics have it wrong. There are serious problems with CEO compensation, but "excessive" pay is not the biggest issue. The relentless focus on *how much* CEOs are paid diverts public attention from the real problem—*how* CEOs are paid. In most publicly held companies, the compensation of top executives is virtually independent of performance. On average, corporate America pays its most important leaders like bureaucrats. Is it any wonder then that so many CEOs act like bureaucrats rather than the value-maximizing entrepreneurs companies need to enhance their standing in world markets?

We recently completed an in-depth statistical analysis of executive compensation. Our study incorporates data on thousands of CEOs spanning five decades. The base sample consists of information on salaries and bonuses for 2,505 CEOs in 1,400 publicly

---

* Michael C. Jensen is the Edsel Bryant Ford Professor of Business Administration at the Harvard Business School. Kevin J. Murphy is an associate professor at the University of Rochester's William E. Simon Schol of Business Administration.

held companies from 1974 through 1988. We also collected data on stock options and stock ownership for CEOs of the 430 largest publicly held companies in 1988. In addition, we drew on compensation data for executives at more than 700 public companies for the period 1934 through 1938.

Our analysis leads us to conclusions that are at odds with the prevailing wisdom on CEO compensation:

Despite the headlines, top executives are not receiving record salaries and bonuses. Salaries and bonuses have increased over the last 15 years, but CEO pay levels are just now catching up to where they were 50 years ago. During the period 1934 through 1938, for example, the average salary and bonus for CEOs of leading companies on the New York Stock Exchange was $882,000 (in 1988 dollars). For the period 1982 through 1988, the average salary and bonus for CEOs of comparable companies was $843,000.

Annual changes in executive compensation do not reflect changes in corporate performance. Our statistical analysis posed a simple but important question: For every $1,000 change in the market value of a company, how much does the wealth of that company's CEO change? The answer varied widely across our 1,400-company sample. But for the median CEO in the 250 largest companies, a $1,000 change in corporate value corresponds to a change of just 6.7 cents in salary and bonus over two years. Accounting for all monetary sources of CEO incentives—salary and bonus, stock options, shares owned, and the changing likelihood of dismissal—a $1,000 change in corporate value corresponds to a change in CEO compensation of just $2.59.

Compensation for CEOs is no more variable than compensation for hourly and salaried employees. On average, CEOs receive about 50% of their base pay in the form of bonuses. Yet these "bonuses" don't generate big fluctuations in CEO compensation. A comparison of annual inflation-adjusted pay changes for CEOs from 1975 through 1988 and pay changes for 20,000 randomly selected hourly and salaried workers shows

remarkably similar distributions. Moreover, a much lower percentage of CEOs took real pay cuts over this period than did production workers.

With respect to pay for performance, CEO compensation is getting worse rather than better. The most powerful link between shareholder wealth and executive wealth is direct stock ownership by the CEO. Yet CEO stock ownership for large public companies (measured as a percentage of total shares outstanding) was *ten times* greater in the 1930s than in the 1980s. Even over the last 15 years, CEO holdings as a percentage of corporate value have declined.

Compensation policy is one of the most important factors in an organization's success. Not only does it shape how top executives behave but it also helps determine what kinds of executives an organization attracts. This is what makes the vocal protests over CEO pay so damaging. By aiming their protests at compensation *levels*, uninvited but influential guests at the managerial bargaining table (the business press, labor unions, political figures) intimidate board members and constrain the types of contracts that are written between managers and shareholders. As a result of public pressure, directors become reluctant to reward CEOs with substantial (and therefore highly visible) financial gains for superior performance. Naturally, they also become reluctant to impose meaningful financial penalties for poor performance. The long-term effect of this risk-averse orientation is to erode the relation between pay and performance and entrench bureaucratic compensation systems.

Are we arguing that CEOs are underpaid? If by this we mean "Would average levels of CEO pay be higher if the relation between pay and performance were stronger?" the answer is yes. More aggressive pay-for-performance systems (and a higher probability of dismissal for poor performance) would produce sharply lower compensation for less talented managers. Over time, these managers would be replaced by more able and more highly motivated executives who would, on average, perform

better and earn higher levels of pay. Existing managers would have greater incentives to find creative ways to enhance corporate performance, and their pay would rise as well.

These increases in compensation—driven by improved business performance—would not represent a transfer of wealth from shareholders to executives. Rather, they would reward managers for the increased success fostered by greater risk taking, effort, and ability. Paying CEOs "better" would eventually mean paying the average CEO more. Because the stakes are so high, the potential increase in corporate performance and the potential gains to shareholders are great.

How Compensation Measures Up

Shareholders rely on CEOs to adopt policies that maximize the value of their shares. Like other human beings, however, CEOs tend to engage in activities that increase their own well-being. One of the most critical roles of the board of directors is to create incentives that make it in the CEO's best interest to do what's in the shareholders' best interests. Conceptually this is not a difficult challenge. Some combination of three basic policies will create the right monetary incentives for CEOs to maximize the value of their companies:

- Boards can require that CEOs become substantial owners of company stock.
- Salaries, bonuses, and stock options can be structured so as to provide big rewards for superior performance and big penalties for poor performance.
- The threat of dismissal for poor performance can be made real.

Unfortunately, as our study documents, the realities of executive compensation are at odds with these principles. Out statistical analysis departs from most studies of executive compensation. Unlike the annual surveys in the business press, for example, we do not focus on this year's levels of cash compensation or cash compensation plus stock options exercised. Instead, we apply regression analysis to 15 years' worth of data

and estimate how changes in corporate performance affect CEO compensation and wealth over all relevant dimensions.

We ask the following questions: How does a change in performance affect current cash compensation, defined as changes in salary and bonus over two years? What is the "wealth effect" (the present value) of those changes in salary and bonus? How does a change in corporate performance affect the likelihood of the CEO being dismissed, and what is the financial impact of this new dismissal probability? Finally, how does a change in corporate performance affect the value of CEO stock options and shares, whether or not the CEO exercised the options or sold the shares? (For a discussion of our methodology, see the insert, "How We Estimate Pay for Performance.")

The table "The Weak State of Pay for Performance" provides a detailed review of our main findings for a subsample of CEOs in the 250 largest publicly held companies. Together, these CEOs run enterprises that generate revenues in excess of $2.2 trillion and employ more than 14 million people. The results are both striking and troubling. A $1,000 change in corporate market value (defined as share price appreciation plus dividends) corresponds to a two-year change in CEO salary and bonus of less than a dime; the long-term effects of that change add less than 45 cents to the CEO's wealth. A $1,000 change in corporate value translates into an estimated median change of a nickel in CEO wealth by affecting dismissal prospects. At the median, stock options add another 58 cents worth of incentives. Finally, the value of shares owned by the median CEO changes by 66 cents for every $1,000 increase in corporate value. All told, for the median executive in this sub-sample, a $1,000 change in corporate performance translates into a $2.59 change in CEO wealth. The table also reports estimates for CEOs at the lower and upper bounds of the middle two quartiles of the sample. (For an extensive review and comparison of the pay-for-performance relation for individual CEOs, see "A New Survey of Executive Compensation" that follows this article.)

THE WEAK STATE OF PAY FOR PERFORMANCE

A $1,000 CHANGE IN SHAREHOLDER WEALTH CORRESPONDS TO	ESTIMATES FOR CEOS IN THE 250 LARGEST COMPANIES: MEDIAN	MIDDLE 50%
Change in this year's and next year's salary and bonus	$0.067	$0.01 to $0.18
Present value of the two-year change in salary and bonus	0.44	0.05 to 1.19
Change in the value of stock options	0.58	0.16 to 1.19
Wealth effect for change in likelihood of dismissal	0.05	0.02 to 0.14
Total change in all pay-related wealth	$1.29	$0.43 to $2.66
Change in value of direct stockholdings	0.66	0.25 to 1.98
Total change in CEO wealth	$2.59	$0.99 to $5.87

Note: The median individual components do not add to the median total change in CEO wealth since sums of medians do not in general equal the median of sums.

This degree of pay-for-performance sensitivity for cash compensation does not create adequate incentives for executives to maximize corporate value. Consider a corporate leader whose creative strategic plan increases a company's market value by $100 million. Based on our study, the median CEO can expect a two-year increase in salary and bonus of $6,700—hardly a meaningful reward for such outstanding performance. His lifetime wealth would increase by $260,000—less than 4% of the present value of the median CEO's shareholdings and remaining lifetime salary and bonus payments.[1]

Or consider instead a CEO who makes a wasteful investment—new aircraft for the executive fleet, say, or a spanking addition to the headquarters building—that benefits him but diminishes the market value of the company by $10 million. The total wealth of this CEO, if he is representative of our sample, will decline by only $25,900 as a result of this misguided investment—not much of a disincentive for someone who earns on average $20,000 a week.

[1] The median CEO in our sample holds stock worth $2.4 million. The average 1988 salary and bonus for the CEOs in our sample was roughly $1 million. At a real interest rate of 3%, the present value of the salary and bonus for the next five years to retirement (the average for the sample) is $4.6 million. Thus total lifetime wealth from the company is $7 million.

One way to explore the realities of CEO compensation is to compare current practices with the three principles that we outlined earlier. Let's address them one at a time.

CEOs should own substantial amounts of company stock. The most powerful link between shareholder wealth and executive wealth is direct ownership of shares by the CEO. Most commentators look at CEO stock ownership from one of two perspectives—the dollar value of the CEO's holdings or the value of his shares as a percentage of his annual cash compensation. But when trying to understand the incentive consequences of stock ownership, neither of these measures counts for much. What really matters is *the percentage of the company's outstanding shares the CEO owns.* By controlling a meaningful percentage of total corporate equity, senior managers experience a direct and powerful "feedback effect" from changes in market value.

Think again about the CEO adding jets to the corporate fleet. The stock-related "feedback effect" of this value-destroying investment—about $6,600—is small because this executive is typical of our sample, in which the median CEO controls only .066% of the company's outstanding shares. Moreover, this wealth loss (about two days' pay for the average CEO in a top-250 company) is the same whether the stockholdings represent a big or small fraction of the CEO's total wealth.

But what if this CEO held shares in the company comparable to say, Warren Buffet's stake in the Berkshire Hathaway conglomerate? Buffet controls, directly and indirectly, about 45% of Berkshire Hathaway's equity. Under these circumstances, the stock-related feedback effect of a $10 million decline in market value is nearly $4.5 million—a much more powerful incentive to resist wasteful spending.

Moreover, these differences in CEO compensation are associated with substantial differences in corporate performance. From 1970 through 1988, the average annual compound stock return on the 25 companies with the best CEO incentives (out of the largest 250 companies examined in our survey) was 14.5%, more than one-third higher

than the average return on the 25 companies with the worst CEO incentives. A $100 investment in the top 25 companies in 1970 would have grown to $1,310 by 1988, as compared with $702 for a similar investment in the bottom 25 companies.

As a percentage of total corporate value, CEO share ownership has never been very high. The median CEO of one of the nation's 250 largest public companies own shares worth just over $2.4 million—again, less than 0.07% of the company's market value. Also, 9 out of 10 CEOs own less than 1% of their company's stock, while fewer than 1 in 20 owns more than 5% of the company's outstanding shares.

It is unreasonable to expect all public-company CEOs to own as large a percentage of their company's equity as Warren Buffett's share of Berkshire Hathaway. Still, the basic lesson holds. The larger the share of company stock controlled by the CEO and senior management, the more substantial the linkage between shareholder wealth and executive wealth. A few companies have taken steps to increase the share of corporate equity owned by senior management. Employees of Morgan Stanley now own 55% of the firm's outstanding equity. Companies such as FMC and Holiday have used leveraged recapitalizations to reduce the amount of outstanding equity by repurchasing public shares, and thus allow their managers to control a bigger percentage of the company. After FMC adopted its recapitalization plan, for example, employee ownership increased from 12% to 40% of outstanding equity. These recapitalizations allow managers to own a bigger share of their company's equity without necessarily increasing their dollar investment.

Truly giant companies like IBM, General Motors, or General Electric will never be able to grant their senior executives a meaningful share of outstanding equity. These and other giant companies should understand that this limitation on executive incentives is a real cost associated with bigness.

Cash compensation should be structured to provide big rewards for outstanding performance and meaningful penalties for poor performance. A two-year cash reward of

less than 7 cents for each $1,000 increase in corporate value (or, conversely, a two-year penalty of less than 7 cents for each $1,000 decline in corporate value) does not create effective managerial incentives to maximize value. In most large companies, cash compensation for CEOs is treated like an entitlement program.

There are some notable exceptions to this entitlement pattern. The cash compensation of Walt Disney CEO Michael Eisner, whose pay has generated such attention in recent years, is more than ten times more sensitive to corporate performance than the median CEO in our sample. Yet the small number of CEOs for whom cash compensation changes in any meaningful way in response to corporate performance shows how far corporate America must travel if pay is to become an effective incentive.

Creating better incentives for CEOs almost necessarily means increasing the financial risk CEOs face. In this respect, cash compensation has certain advantages over stock and stock options. Stock-based incentives subject CEOs to vagaries of the stock market that are clearly beyond their control. Compensation contracts based on company performance relative to comparable companies could provide sound incentives while insulating the CEO from factors such as the October 1987 crash. Although there is some evidence that directors make implicit adjustments for market trends when they set CEO pay, we are surprised that compensation plans based explicitly on relative performance are so rare.[2]

The generally weak link between cash compensation and corporate performance would be less troubling if CEOs owned a large percentage of corporate equity. In fact, it would make sense for CEOs with big chunks of equity to have their cash compensation less sensitive to performance than CEOs with small stockholdings. (For example, Warren Buffet's two-year cash compensation changes by only a penny for every $1,000 increase in market value.) In some cases, it might even make sense for pay to go up in

[2] See Gibbons and Murphy [, 1990 #664, p. 30-S].

bad years to serve as a financial "shock absorber" for losses the CEO is taking in the stock market. Yet our statistical analysis found no correlation between CEO stock ownership and pay-for-performance sensitivity in cash compensation. In other words, boards of directors ignore CEO stock ownership when structuring incentive compensation plans. We find this result surprising—and symptomatic of the ills afflicting compensation policy.

Make real the threat of dismissal. The prospect of being fired as a result of poor performance can provide powerful monetary and nonmonetary incentives for CEOs to maximize company value. Because much of an executive's "human capital" (and thus his or her value in the job market) is specific to the company, CEOs who are fired from their jobs are unlikely to find new jobs that pay as well. In addition, the public humiliation associated with a high-visibility dismissal should cause managers to carefully weigh the consequences of taking actions that increase the probability of being dismissed.

Here too, however, the evidence is clear: the CEO position is not a very risky job. Sports fans are accustomed to baseball managers being fired after one losing season. Few CEOs experience a similar fate after years of underperformance. There are many reasons why we would expect CEOs to be treated differently from baseball managers. CEOs have greater organization-specific capital; it is harder for an outsider to come in and run a giant company than it is for a new manager to take over a ball club. There are differences in the lag between input and output. The measure of a baseball manager's success is the team's won-lost record this year; the measure of a corporate manager is the company's long-term competitiveness and value. For these and other reasons, it is not surprising that turnover rates are lower for CEOs than for baseball managers. It is surprising that the magnitude of the discrepancy is so large.

On average, CEOs in our base sample (2,505 executives) hold their jobs for more than ten years before stepping down, and most give up their title (but not their seat on the board) only after reaching normal retirement age. Two recent studies, spanning 20 years

and more than 500 management changes, found only 20 cases where CEOs left their jobs because of poor performance.[3] To be sure, directors have little to gain from publicly announcing that a CEO is leaving because of failure—many underperforming CEOs leave amidst face-saving explanations and even public congratulations. But this culture of politeness does not explain why so few underperforming CEOs leave in the first place. University of Rochester's Michael Weisbach found that CEOs of companies that rank in the bottom 10% of the performance distribution (measured by stock returns) are roughly twice as likely to leave their jobs as CEOs whose companies rank in the top 10% of the performance distribution. Yet the differences that Weisbach quantifies—a 3% chance of getting fired for top performers versus a 6% chance of getting fired for laggards—are unlikely to have meaningful motivational consequences for CEOs.

Our own research confirms these and other findings. CEOs of large public companies are only slightly more likely to step down after very poor performance (which we define as company earnings 50% below market averages for two consecutive years) than after average performance. For the entire 1,400 -company sample, our analysis estimates that the poor-performing CEOs are roughly 6% more likely to leave their jobs than CEOs of companies with average returns. Even assuming that a dismissed CEO never works again, the personal wealth consequences of this increased likelihood of dismissal amounts to just 5 cents for every $1,000 loss of shareholder value.

With respect to pay for performance, there's no denying that the results of our study tell a bleak story. Then again, perhaps corporate directors are providing CEOs with substantial rewards and penalties based on performance, but they are measuring performance with metrics other than long-run market value. We tested this possibility and reached the same conclusion as in our original analysis. Whatever the metric, CEO compensation is independent of business performance.

---

[3] See Warner, Watts, and Wruck [, 1989 #521, p. 461] and Weisbach [, 1988 #523, p. 431].

For example, we tested whether companies rewarded CEOs on the basis of sales growth or accounting profits rather than on direct changes in shareholder wealth. We found that while more of the variation in CEO pay could be explained by changes in accounting profits than stock market value, the pay-for-performance sensitivity was economically just as insignificant as in our original model. Sales growth had little explanatory power once we controlled for accounting profits.[4]

Of course, incentives based on other measures will be captured by our methodology only to the extent that they ultimately correlate with changes in shareholder wealth. But if they don't—that is, if directors are rewarding CEOs based on variables other than those that affect corporate market value—why use such measures in the first place?

Moreover, if directors varied CEO compensation substantially from year to year based on performance measures not observable to us, this policy would show up as high raw variability in CEO compensation. But over the past 15 years, compensation for CEOs has been about as variable as cash compensation for a random sample of hourly and salaried workers—dramatic evidence of compensation's modest role in generating executive incentives.[5] "Common Variability: CEO and Worker Wages" compares the distribution of annual raises and pay cuts of our CEO sample with national data on hourly and salaried workers from 1975 through 1986. A larger percentage of workers took real pay cuts at some time over this period than did CEOs. Overall, the standard deviation of annual changes in CEO pay was only slightly greater than for hourly and salaried employees (32.7% versus 29.7%).

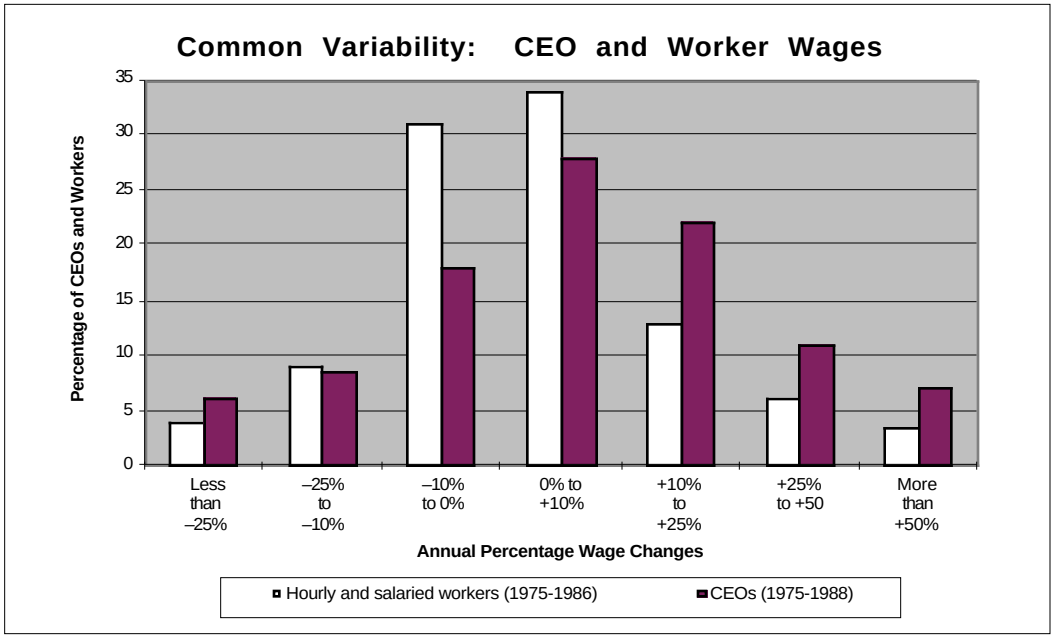
---

[4] For more detail on these tests, see Jensen and Murphy [, 1990 #354].

[5] Data on hourly and salaried workers come from the Michigan Panel Study on Income Dynamics. The sample includes 21,895 workers aged 21 to 65 reporting wages in consecutive periods. See McLaughlin [, 1989 #781].

Looking Backward: Pay for Performance in the 1930s

CEO compensation policies look especially unsatisfactory when compared with the situation 50 years ago. All told, CEO compensation in the 1980s was lower, less variable, and less sensitive to corporate performance than in the 1930s. To compare the current situation with the past, we constructed a longitudinal sample of executives from the 1930s using data collected by the Works Projects Administration. The WPA data, covering fiscal years 1934 through 1938, include salary and bonus for the highest paid executive (whom we designate as the CEO) in 748 large U.S. corporations in a wide range of industries. Nearly 400 of the WPA sample companies were listed on the New York Stock Exchange, and market values for these companies are available on the CRSP Monthly Stock Returns Tape. In order to compare similar companies over the two time periods, we restricted our analysis to companies in the top 25% of the NYSE, ranked by market value. WPA compensation data are available for 60% of this top quartile group (averaging 112 companies per year), while data for more recent times are available for 90% of the top quartile companies (averaging 345 companies per year).



The results are striking. Measured in 1988 constant dollars, CEOs in top quartile public companies earned an average salary and bonus of $882,000 in the 1930s—more than the 1982 through 1988 average of $843,000 and significantly more than the 1974 through 1981 average of $642,000. Over this same time period, there has been a tripling (after inflation) of the market value of top quartile companies—from $1.7 billion in the 1930s to $5.9 billion in 1982 through 1988. Coupled with the decline in salaries, the ratio of CEO pay to total company value has fallen significantly—from 0.11% in the 1930s to 0.03% in the 1980s. Compensation was more variable in the 1930s as well. The average standard deviation of the annual pay changes—the best statistical measure of the year-to-year variability of compensation—was $504,000 in the 1930s compared with $263,500 in the 1980s.

The incentives generated by CEO stock ownership have also declined substantially over the past 50 years. To test this trend, we reviewed stock ownership data for CEOs in the 120 largest companies (ranked by market value) in 1938, 1974, and 1988. "Whatever Happened to CEO Stock Ownership?" reports our findings. The percentage of outstanding shares owned by CEOs (including shares held by family

members) in the top 120 companies fell by a factor of nearly ten from 1938 to 1988. The trend is unmistakable: as a percentage of total market value, CEO stock ownership has declined substantially over the last 50 years and is continuing to fall.

The Costs of Disclosure

Why don't boards of directors link pay more closely to performance? Commentators offer many explanations, but nearly every analysis we've seen overlooks one powerful ingredient—the costs imposed by making executive salaries public. Government disclosure rules ensure that executive pay remains a visible and controversial topic. The benefits of disclosure are obvious; it provides safeguards against "looting" by managers in collusion with "captive" directors. The costs of disclosure are less well appreciated but may well exceed the benefits.

Managerial labor contracts are not a private matter between employers and employees. Third parties play an important role in the contracting process, and strong political forces operate inside and outside companies to shape executive pay. Moreover, authority over compensation decisions rests not with the shareholders but with compensation committees generally composed of outside directors. These committees are elected by shareholders but are not perfect agents for them. Public disclosure of "what the boss makes" gives ammunition to outside constituencies with their own special-interest agendas. Compensation committees typically react to the agitation over pay levels by capping—explicitly or implicitly—the amount of money the CEO earns.

How often do shareholder activists or union leaders denounce a corporate board for *under*paying the CEO? Not very often—and that's precisely the problem. Most critics of executive pay want it both ways. They want companies to link pay to performance, yet they also want to limit compensation to arbitrary amounts or some fuzzy sense of "what's fair." That won't work. Imposing a ceiling on salaries for outstanding performers inevitably means creating a floor for poor performers. Over time,

by cutting off the upper and lower tails of the distribution, the entire pay-for-performance relation erodes. When mediocre outfielders earn a million dollars a year, and New York law partners earn about the same, influential critics who begrudge comparable salaries to the men and women running billion-dollar enterprises help guarantee that these companies will attract mediocre leaders who turn in mediocre performances.

Admittedly, it is difficult to document the effect of public disclosure on executive pay. Yet there have been a few prominent examples. Bear, Stearns, the successful investment bank, went public in 1985 and had to submit to disclosure requirements for the first time. CEO Alan Greenberg's $2.9 million salary and bonus was the nation's fourth highest that year, and his ranking drew attention to the firm's compensation system. Under private ownership, compensation of the firm's managing directors was set at a modest $150,000 base plus a bonus pool tied to earnings—a tight link between pay and performance. Because the firm was so profitable in 1986, the bonus pool swelled to $80 million, an average of $842,000 for each of the firm's 95 managing directors. A public outcry ensued. Six months after going public, Bear, Stearns announced it was lowering the bonus pool from 40% to 25% of the firm's adjusted pretax earnings in excess of $200 million. According to one account, the firm's business success had "yielded an embarrassment of riches for top executives."[6]

More recently, we interviewed the president of a subsidiary of a thriving publicly traded conglomerate. This president is compensated with a straight fraction of his subsidiary's earnings above a minimum threshold, with no upper bound. Today he makes roughly five times what he made before his operation was acquired by the conglomerate, and corporate headquarters recognizes him as one of the company's outstanding executives. Why doesn't he want to be an officer of the conglomerate? For

[6] *Wall Street Journal*, March 21, 1986.

one, because his salary would have to be made public—a disclosure both he and the CEO consider a needless invitation to internal and external criticism.

We are not arguing for the elimination of salary disclosure. (Indeed, without disclosure we could not have conducted this study.) But it's time compensation committees stood up to outside criticism and stopped adopting policies that make their companies' incentive problem worse. The costs of negative publicity and political criticism are less severe than the costs to shareholder wealth created by misguided compensation systems.

Corporate Brain Drain

The level of pay has very little to do with whether or not CEOs have incentives to run companies in the shareholders' interests—incentives are a function of how pay, whatever the level, changes in response to corporate performance. But the level of pay does affect the quality of managers an organization can attract. Companies that are willing to pay more will, in general, attract more highly talented individuals. So if the critics insist on focusing on levels of executive pay, they should at least ask the right question: Are current levels of CEO compensation high enough to attract the best and brightest individuals to careers in corporate management? The answer is, probably not.

Who can disagree with these propositions?

- It is good when our most talented men and women are attracted to the organizations that produce the goods and deliver the services at the heart of the economy.
- People evaluate alternative careers at least in part on the basis of lifetime monetary rewards.
- People prefer to make more money than less, and talented, self-confident people prefer to be rewarded based on performance rather than independent of it.

- If some organizations pay more on average and offer stronger pay-for-performance systems than other organizations, talent will migrate to the higher paying organizations.

These simple propositions are at the heart of a phenomenon that has inspired much handwringing and despair over the last decade—the stream of talented, energetic, articulate young professionals into business law, investment banking, and consulting. Data on career choices of Harvard Business School graduates document the trend that troubles so many pundits. Ten years ago, nearly 55% of newly graduated HBS students chose careers in the corporate sector, while less than 30% chose investment banking or consulting. By 1987, more than half of all HBS graduates entered investment banking or consulting, while under 30% chose careers in the corporate sector. Last year, just over one-third of all graduating HBS students chose corporate careers, while nearly 40% chose careers in investment banking or consulting. And Harvard Business School is not alone; we gathered data on other highly rated MBA programs and found similar trends.

We don't understand why commentators find this trend so mysterious. A highly sensitive pay-for-performance system will cause high-quality people to self-select into a company. Creative risk takers who perceive they will be in the upper tail of the performance and pay distribution are more likely to join companies who pay for performance. Low-ability and risk-averse candidates will be attracted to companies with bureaucratic compensation systems that ignore performance.

Compensation systems in professions like investment banking and consulting are heavily weighted toward the contributions made by individuals and the performance of their work groups and companies. Compensation systems in the corporate world are often independent of individual, group, or overall corporate performance. Moreover, average levels of top-executive compensation on Wall Street or in corporate law are considerably higher than in corporate America. Financially speaking, if you are a bright, eager 26-year old with enough confidence to want to be paid based on your contribution,

why would you choose a career at General Motors or Procter & Gamble over Morgan Stanley or McKinsey & Company?

Most careers, including corporate management, require lifetime investments. Individuals must choose their occupation long before their ultimate success or failure becomes a reality. For potential CEOs, this means that individuals seeking careers in corporate management must join their companies at an early age in entry-level jobs. The CEOs in our sample spent an average of 16 years in their companies before assuming the top job. Of course, many people who reach the highest ranks of the corporate hierarchy could also expect to be successful in professional partnerships such as law or investment banking, as proprietors of their own businesses, or as CEOs of privately held companies. It is instructive, therefore, to compare levels of CEO compensation with the compensation of similarly skilled individuals who have reached leadership positions in other occupations.

SALARIES FOR TOP LAWYERS ARE HIGH . . .

RANK	FIRM	AVERAGE INCOME PER PARTNER	NUMBER OF PARTNERS
1	Cravath, Swaine, & Moore	$1,595,000	67
2	Cahill Gordon & Reindel	$1,420,000	57
3	Sullivan & Cromwell	$1,375,000	91
4	Wachtell Lipton, Rosen & Katz	$1,350,000	46
5	Skadden, Arps, Slate, Meagher & Flom	$1,155,000	177

Source: *The American Lawyer,* July-August 1989, p. 34.

The compensation of top-level partners in law firms is one relevant comparison. These numbers are closely guarded secrets, but some idea of the rewards to top partners can be gleaned from data on average partner income reported each year in a widely read industry survey. The table “Salaries for Top Lawyers Are High . . .” reports 1988 estimated average incomes earned by partners in the highest paying corporate law firms. These five firms paid their 438 partners *average* incomes ranging from $1.35 million to nearly $1.6 million. Partners at the very top of these firms earned substantially more.

When comparing these results with corporate compensation, the appropriate question to ask is "How many public companies paid their top 67 or 177 executives average salaries of $1.6 million or $1.2 million in 1989?" The answer is, few or none. How surprising is it, then, that law school classes are bulging with some of the country's brightest students?

. . . SO ARE SALARIES ON WALL STREET

FIRM	NUMBER OF PARTNERS EARNING MORE THAN $3 MILLION IN 1988	AVERAGE EARNINGS FOR PARTNERS EARNING MORE THAN $3 MILLION IN 1988
Drexel Burnham Lambert	20	$18,000,000
Goldman, Sachs	18	$ 9,100,000
Morgan Stanley	11	$ 4,300,000
Sterling Group	6	$36,700,000
Kohlberg Kravis Roberts	5	$59,000,000
Lazard Freres	5	$17,200,000
Salomon Brothers	5	$ 4,700,000
Neuberger & Berman	5	$ 4,700,000

Source: *Financial World,* July 11, 1989. Average earnings are based on *Financial World's* lower bound earnings estimate, p. 32.

Compensation for the most successful corporate managers is also modest in comparison with compensation for the most successful Wall Street players. Here too it is difficult to get definitive numbers for a large sample of top executives. But the most recent annual survey, as reported in the table ". . . So Are Salaries on Wall Street," documents the kinds of rewards available to top investment bankers. At Goldman, Sachs, for example, 18 partners earned more than $3 million in 1988, and the average income for those partners was more than $9 million. Only nine public-company CEOs had incomes in excess of $9 million in 1988 (mostly through exercising stock options), and no public company paid its top 18 executives more than $3 million each. The Wall Street surveys for 1989 are not yet available, but consistent with high pay-for-performance systems, they will likely show sharp declines in bonuses reflecting lower 1989 industry performance.

The compensation figures for law and investment banking look high because they reflect only the most highly paid individuals in each occupation. Average levels of

compensation for lawyers or investment bankers may not be any higher than average pay levels for executives. But that's not the relevant comparison. The very best lawyers or investment bankers can earn substantially more than the very best corporate executives. Highly talented people who would succeed in any field are likely to shun the corporate sector, where pay and performance are weakly related, in favor of organizations where pay is more strongly related to performance—and the prospect of big financial rewards more favorable.

Money Isn't Everything

Some may object to our focus on monetary incentives as the central motivator of CEO behavior. Are there not important nonmonetary rewards associated with running a large organization? Benefits such as power, prestige, and public visibility certainly do affect the level of monetary compensation necessary to attract highly qualified people to the corporate sector. But unless nonmonetary rewards vary positively with company value, they are no more effective than cash compensation in motivating CEOs to act in the shareholders' interests. Moreover, because nonmonetary benefits tend to be a function of position or rank, it is difficult to vary them from period to period based on performance.

Indeed, nonmonetary rewards typically motivate top managers to take actions that *reduce* productivity and harm shareholders. Executives are invariably tempted to acquire other companies and expand the diversity of the empire, even though acquisitions often reduce shareholder wealth. As prominent members of their community, CEOs face pressures to keep open uneconomic factories, to keep the peace with labor unions despite the impact on competitiveness, and to satisfy intense special-interest pressures.

Monetary compensation and stock ownership remain the most effective tools for aligning executive and shareholder interests. Until directors recognize the importance of

incentives—and adopt compensation systems that truly link pay and performance—large companies and their shareholders will continue to suffer from poor performance.

How We Estimate Pay for Performance

Our analysis draws primarily on two sources of data: annual executive compensation surveys published in *Forbes* magazine from 1975 through 1988 and Standard & Poor's Compustat file. The base sample includes information on 2,505 CEOs from 1,400 companies. We estimated pay-for-performance sensitivities for each CEO using a variety of statistical techniques. The findings reported in the table "The Weak State of Pay for Performance" represent the median and "middle 50%" CEOs in a sample of the 250 largest companies.

Perhaps the best way to illustrate our methodology is to review pay-for-performance calculations for a single CEO—for example, David H. Murdock of Castle & Cooke, Inc., who tops our list of large-company CEOs with the best incentives. For each element of Mr. Murdock's compensation, we estimated answers to the same question: How does that compensation element change in response to a $1,000 change in corporate value, as measured by annual share price appreciation and dividends?

Two-Year Change in Salary and Bonus. We used least squares regression to calculate the relation between the dollar change in salary and bonus and the dollar change in shareholder wealth for all companies with at least seven years of pay-change data from 1975 through 1988. We estimate a single pay-for-performance sensitivity for each company, therefore our estimates for Castle & Cooke use data on both Murdock and his predecessor Donald Kirchhoff. We did not use data on three other former CEOs—Robert Cook, Ian Wilson, and Henry Clark, Jr. —because they each served as CEO for less than two years and we could therefore not calculate pay changes. The regression equation uses last year's performance in addition to this year's performance as explanatory variables. The result was:

(change in salary and bonus) = $32,300
+ .000986 (change in this year's hareholder wealth)
- .000219 (change in last year's shareholder wealth)

The pay-for-performance sensitivity is defined as the estimated slope coefficient in the regression equation. For this regression, the sum of the estimated coefficients implies that each $1,000 increase in the wealth of Castle & Cooke shareholders corresponds to an increase of 98.6 cents in this year's salary and bonus for Murdock, and a decrease of 21.9 cents in next year's salary and bonus. Thus the total expected increase in salary and bonus over two years is 77 cents per $1,000 change in value.

We estimated 430 separate regressions like the one for Murdock, having eliminated 740 companies due to incomplete information and 230 companies that were no longer in the sample in 1988. The pattern of t-statistics for the individual regressions implies that the average pay-performance coefficients are positive and statistically different from zero at confidence levels exceeding 99%.

Pay-Related Wealth. The estimate of 77 cents is an accurate measure of how David Murdock's and Donald Kirchhoff's salary and bonus change due to a $1,000 change in shareholder value. But it under-estimates the change in their wealth. Since part of the change is permanent, they will earn it for the rest of their careers. In addition, Murdock and Kirchhoff received "other" income as fringe benefits and payoffs from long-term performance plans. We measure the change in their total wealth as the discounted present value of the permanent component of the change in compensation plus other income for the year.

To estimate the wealth change, we make three assumptions: (1) all changes in salary and bonus are permanent, while other forms of pay are transitory; (2) the CEO receives the change in salary and bonus until age 66; and (3) the wage increase to age 66 is discounted at the real interest rate of 3%. The resulting regression equation for Castle & Cooke, based on these assumptions, is:

(other income + present value of change in salary and bonus) =
$150,000 + .00310 (change in this year's shareholder wealth)
+ .00060 (change in last year's shareholder wealth)

The sum of the estimated coefficients in this regression implies that Murdock's and Kirchhoff's wealth (as a result of changes in salary and bonus) changes an average of $3.70 for every $1,000 change in the market value of Castle & Cooke.

Stock Options. Stock options are an increasingly important component of executive compensation packages, and their value relates directly to changes in share price. However, holding a stock option does not provide the same incentives as owning a share of stock—a distinction sometimes overlooked by compensation practitioners. For example, stock ownership rewards both price appreciation and dividends, while options reward only appreciation.

Moreover, the value of an option changes by less than $1 when the stock price changes by $1. How much less depends on factors such as interest rates, dividend yields, and whether the option is in or out of the money. Our simulation results show that 60 cents is a good approximation for the value change of at-the-money options for a company with a (sample average) dividend yield of 5%. This holds for a reasonable range of maturities, variance of stock returns, and interest rates.

We collected data on total stock options held by each of the sample CEOs from the proxy statements issued in advance of the company's 1989 annual meeting. Unfortunately, outstanding options are not always reported on proxy statements. So we estimated Murdock's outstanding options as options granted in 1988 (50,000 shares) plus options exercisable within 60 days (300,000 shares). Castle & Cooke had 59.3 million shares outstanding. A $1,000 change in shareholder wealth corresponds to the following change in the value of Murdock's options:

$$\left(\frac{\$.60 \text{ change in value of option}}{\$1 \text{ change in stock price}}\right) \text{x} \left(\frac{350{,}000 \text{ Options}}{59{,}250{,}000 \text{ Total Shares}}\right) \text{x } \$1{,}000 = \$3.54$$

Thus Murdock's option-related wealth changes by $3.54 for every $1,000 change in shareholder wealth. This estimate understates the change in the value of his options to the extent that he holds options granted prior to 1988 that are not exercisable within 60 days. We also underestimate the option-value change if his outstanding options are in the money, while we overstate the value change of out-of-the-money options.

Dismissal Incentives. The threat of being fired for poor performance provides monetary as well as nonmonetary incentives for CEOs to maximize value. We estimate the financial incentives associated with dismissal through a four-stage process. First, using nonlinear "logistic" regression techniques on our 1974 through 1988 sample of 2,505 CEOs, we estimate the probability that a CEO will leave the job as a function of industry, company size, CEO age, market-relative performance, and lagged market-relative performance. Second, we compute point estimates of the departure probabilities when the company earns the market rate of return for two years versus when the company realizes share-price returns 50% below the market in two consecutive years. Third, we multiply the difference in these two "dismissal probabilities" by the discounted value of the CEO's potential lost wages, assuming that the CEO would have received the current salary until age 66, and, if dismissed, never works again. Fourth, we calculate the dismissal performance sensitivity by dividing the CEO's potential wealth loss by the shareholder loss associated with earning 50% below-market returns for two years.

In Murdock's case, the probability that a 65-year-old CEO in a smaller-than-median-size company leaves his job is 20.7% in years when the company earns the market return and 23.9% when his company earns 50% below the market return for two straight years. The probability that Murdock will be fired (or encouraged to leave) for poor performance is 3.2%. Murdock's dismissal-related loss is his $1.5 million 1988 pay multiplied by the turnover-probability difference, or about $48,000. (If Murdock had been younger than 65, we would have calculated the present value of his 1988 pay until he reached 66.) Castle & Cooke shareholders, on the other hand, would lose about $1.25

billion of their $1.67 billion equity from two straight years of 50% below-market performance. Thus Murdock's potential wealth loss is about 3.8 cents per $1,000 lost by shareholders.

It is important to note that while our estimates of other CEO incentive sources use data for the individual CEO's company, our estimates of CEO-dismissal performance sensitivities are based on the entire sample. It is generally impossible to make company-specific estimates of the wealth effects of dismissal threats.

Stock Ownership. The most important component of CEO incentives is also the easiest to measure. As of March 1989, Murdock held directly 13,203,932 shares of Castle & Cooke. In addition, his children hold 80,870 shares in trusts. All told, his family holds 13,284,802 shares, or 22.42% of Castle & Cooke's outstanding stock. His total stock-related incentives are roughly $224.24 per $1,000 change in market value.

Putting It All Together. David Murdock's total pay-for-performance sensitivity is simply the sum of the sensitivities of each compensation element, of $231.53 per $1,000 change in shareholder value. This makes Murdock the CEO with the best incentives in the 250 largest companies.

Appendix

A New Survey of Executive Compensation

Routinely misused and abused, surveys contribute to the common ills of corporate compensation policy. Surveys that report average compensation across industries help inflate salaries, as everyone tries to be above average (but not in front of the pack). Surveys that relate pay to company sales encourage systems that tie compensation to size and growth, not performance and value. Surveys that rank the country's highest paid executives stir public outrage, raise legislative eyebrows, and provide emotional justification for increased demands in labor negotiations.

The basic problem with existing compensation surveys is that they focus exclusively on *how much* CEOs are paid instead of *how* they are paid. Our focus on incentives rather than levels leads naturally to a new and different kind of survey. Instead of reporting who's paid the most, our survey reports who's paid the best—that is, whose incentives are most closely aligned with the interests of their shareholders.

Our survey considers incentives from a variety of sources—including salary and bonus, stock options, stock ownership, and the threat of getting fired for poor performance. It includes only companies listed in the *Forbes* executive compensation surveys for at least eight years from 1975 through 1989, since we require at least seven years of pay change to estimate the relation between pay and performance. Our methodology is described in the insert "How We Estimate Pay for Performance."

Compensation surveys in the business press, such as those published by *Fortune* and *Business Week*, are really about levels of pay and not about pay for performance. Yet they often include an analysis or ranking of the appropriateness of a particular CEO's pay by relating it to company performance in some fashion. The methods adopted by *Fortune* and *Business Week* share a common flaw. CEOs earning low fixed salaries while delivering mediocre performance look like stars; on the flip side, CEOs with

genuinely strong pay-for-performance practices rank poorly. For example, *Business Week*'s 1989 survey calculates the ratio of the change in shareholder wealth to the CEO's total compensation, both measured over three years. Executives with the highest ratios are labeled the "CEOs Who Gave the Most for Their Pay." Low-ratio CEOs purportedly gave shareholders the least. *Fortune*'s 1989 compensation issue uses a regression model to estimate how compensation varies with factors such as the CEO's age and tenure, company size, location, industry, and performance. Although the author cautions against taking the results too literally, CEOs earning more than predicted are implicitly designated as "overpaid," while those earning less than predicted are "underpaid."

Consider the case of Disney's Michael Eisner. By all accounts, Mr. Eisner's pay is wedded to company performance—in addition to loads of stock options, he gets 2% of all profits above an annually increasing threshold. Shareholders have prospered under Eisner, and few have complained that his compensation is unreasonable in light of the $7 billion in shareholder wealth he has helped create since joining the company in 1984. But *Business Week* ranks Eisner second on the list of CEOs who gave their shareholders the least (right behind option-laden Lee Iacocca, who over the past decade helped created $6 billion in wealth for the Chrysler shareholders), while *Fortune* flags Eisner as the nation's third most overpaid CEO. Survey's ranking Eisner and Iacocca low are clearly not measuring incentives. In contrast, our survey ranks Eisner and Iacocca as the nation's fourth and ninth respectively "best paid" CEOs measured on the basis of pay-related wealth alone.

We estimated the pay-for-performance relation for each of the 430 companies for which we have sufficient data. The results are summarized in the four nearby tables. Three of the tables include results for the 250 largest companies ranked by 1988 sales. The 25 CEOs with the best and worst overall incentives, as reflected by the relation between their total compensation (composed of all pay-related wealth changes and the change in the value of stock owned), are summarized in the first two tables. Castle &

Cooke, whose current CEO is David Murdock, ranks first with a total change in CEO wealth of $231.53 for every $1,000 change in shareholder wealth. His stockholdings contribute $224.24 of this amount, while the change in all pay-related wealth adds another $7.29.

With a few exceptions, it is clear that the best incentives are determined primarily by large CEO stockholdings. Donald Marron of Paine Webber is such an exception, with more than $55 of his total of $67 coming from changes in pay-related wealth. So too are Philip Hawley of Carter Hawley Hale, Henry Schacht of Cummins Engine, and Disney's Eisner.

The 25 companies providing their CEOs with the worst total incentives are led by Navistar International whose CEO James Cotting on average receives a $1.41 *increase* in wealth for every $1,000 *decrease* in shareholder value. Carolina Power & Light's Sherwood Smith, Jr. receives a 16-cent increase for every $1,000 decrease in shareholder wealth. Other well-known corporations whose CEOs appear on the worst-incentives list include Chevron, Johnson & Johnson, Eastman Kodak, and IBM.

Although one has to recognize that there is statistical uncertainty surrounding our estimates of pay-related wealth sensitivity, no CEO with substantial equity holdings (measured as a fraction of the total outstanding equity) makes our list of low-incentive CEOs. As we point out in the accompanying article, an important disadvantage of corporate size is that it is extremely difficult for the CEO to hold a substantial fraction of corporate equity.

The inverse relation between size and stockholdings (and therefore the negative effect of size on incentives) is readily visible in the much higher sensitivities shown for the top 25 CEOs in smaller companies, those ranking from 251 to 430 in 1988 sales. (See the table "The Best of the Rest: CEO Incentives in Smaller Companies.") Warren Buffett of Berkshire Hathaway leads this list with $446 per $1,000, followed by William

Swindells, Jr. of Williamette Industries, Joe Allbritton of Riggs National, and Barron Hilton of Hilton Hotels. Again, the importance of large stockholdings is clear.

Indeed, one problem with current compensation practices is that boards often reward CEOs with substantial equity through stock options but then stand by to watch CEOs undo the incentives by unloading their stockholdings. Boards seldom provide contractual constraints or moral suasion that discourage the CEO from selling such shares to invest in a diversified portfolio of assets. One of the ironies of the situation is that the corporation itself often funds executive financial counseling by consultants whose common mantra is "sell and diversity, sell and diversify." While this can be personally advantageous to executives, it is not optimal for shareholders or society because it significantly reduces CEOs' incentives to run their companies efficiently.

Pay-related incentives are under the direct control of the compensation committee and the board. The table "Best Paid CEOs of Large Companies" lists the 25 companies that reward their CEOs in a way that provides the best incentives from pay-related wealth alone—changes in salary and bonus, long-term incentive plans, dismissal likelihood, and stock options. Each of these estimates is given in the table, along with the sum of the effects in the last column. The table makes clear that the major contributors to pay-related incentives are stock options and the present value of the change in salary and bonus.

Authors' note: The accompanying tables present estimates of pay-for-performance sensitivities for only a fraction of the CEOs in our full survey. Readers who would like a copy of the full 430-company survey, along with a detailed technical appendix fully describing our methodology, can write to Professor Kevin J. Murphy at the University of Southern California, 4165 Chevy Chase Drive, LaCanada, CA 91011.

THE 25 CEOS OF LARGE COMPANIES WITH THE BEST INCENTIVES

RANK	COMPANY	CEO	TOTAL EFFECTS (OVER TWO YEARS) ON CEO WEALTH CORRESPONDINGTO EACH $1,000 CHANGE IN SHAREHOLDER WEALTH		
			CHANGE IN ALL PAY-RELATED WEALTH	CHANGE IN THE VALUE OF STOCK WNED	CHANGE IN TOTAL CEO WEALTH
1	Castle & Cooke	David H. Murdock	$7.29	$224.24	$231.53
2	Amerada Hess	Leon Hess*	0.02	152.71	152.73
3	Wang Laboratories	An Wang*	0.84	137.83	138.68
4	Aon Corp.	Patrick G. Ryan	0.76	137.46	138.22
5	Loews	Laurence A. Tisch	0.00	126.40	126.40
6	Ethyl	Floyd D. Gottwald, Jr.	-0.25	90.73	90.48
7	Marriott	J. Willard Marriott, Jr.*	1.55	72.58	74.14
8	MCA	Lew R. Wasserman	0.05	70.10	70.15
9	Paine Webber Group	Donald B. Marron	55.59	11.44	67.03
10	Paccar	Charles M. Pigott	2.25	50.86	53.12
11	Times Mirror	Robert F. Erburu	3.29	45.39	48.67
12	Coastal Corp.	Oscar S. Wyatt, Jr.*	0.43	44.33	44.75
13	Archer-Daniels-Midland	Dwayne O. Andreas	-0.15	41.23	41.07
14	Carter Hawley Hale	Philip M. Hawley*	23.36	16.25	39.60
15	McDonnell Douglas	John F. McDonnell*	0.09	33.79	33.88
16	CBS	Laurence A. Tisch	1.79	31.58	33.37
17	Humana	David A. Jones*	1.34	25.88	27.22
18	Winn-Dixie Stores	A. Dano Davis	2.72	23.22	25.95
19	Masco	Richard A. Manoogian	8.78	14.08	22.86
20	American Int'l Group	Maurice R. Greenberg	0.50	21.72	22.22
21	Digital Equipment	Kenneth H. Olsen*	1.00	19.06	20.07
22	MCI Communications	William G. McGowan*	1.77	17.95	19.73
23	Cummins Engine	Henry B. Schacht	18.46	0.87	19.33
24	Walt Disney	Michael D. Eisner	15.62	2.88	18.50
25	FMC	Robert H. Malott	8.43	7.04	15.47

Note: Sample consists of CEOs in the 250 largest companies, ranked by 1988 sales. *Denotes founder or founding-family CEO.

THE 25 CEOS OF LARGE COMPANIES WITH THE WORST INCENTIVES

			TOTAL EFFECTS (OVER TWO YEARS) ON CEO WEALTH CORRESPONDING TO EACH $1,000 CHANGE IN SHAREHOLDER WEALTH		
RANK	COMPANY	CEO	CHANGE IN ALL PAY-RELATED WEALTH	CHANGE IN THE VALUE OF STOCK OWNED	CHANGE IN TOTAL CEO WEALTH
226	Central & South West	Merle L. Borchelt	$0.14	$0.32	$0.46
227	Campbell Soup	R. Gordon McGovern	$0.07	0.38	0.44
228	3M	Allen F. Jacobson	0.28	0.11	0.39
229	Sears Roebuck	Edward A. Brennan	0.17	0.20	0.37
230	AMP	Walter F. Raab	-0.03	0.39	0.36
231	Consolidated Edison	Arthur Hauspurg	0.22	0.12	0.34
232	Detroit Edison	Walter J. McCarthy, Jr.	0.24	0.07	0.31
233	Commonwealth Edison	James J. O'Connor	0.24	0.06	0.30
234	Texas Utilities	Jerry S. Farrington	0.23	0.07	0.29
235	Exxon	Lawrence G. Rawl	0.14	0.11	0.25
236	AT&T	Robert E. Allen	0.19	0.04	0.24
237	ARCO	Lodwrick M. Cook	-0.10	0.33	0.23
238	IBM	John F. Akers	0.13	0.06	0.19
239	Borden	Romeo J. Ventres	-0.20	0.38	0.18
240	Eastman Kodak	Colby H. Chandler	-0.09	0.08	0.17
241	R.R. Donnelley & Sons	John R. Walter	-0.18	0.34	0.16
242	Johnson & Johnson	Ralph S. Larsen	0.11	0.05	0.15
243	Chevron Corp.	Kenneth T. Derr	-0.04	0.15	0.11
244	GTE	James J. Johnson	0.04	0.07	0.11
245	Pacific Gas & Electric	Richard A. Clarke	0.06	0.04	0.10
246	Philadelphia Electric	Joseph F. Paquette, Jr.	0.07	0.01	0.08
247	PacifiCorp	Al M. Gleason	-0.04	0.08	0.04
248	Honeywell	James J. Renier	-0.51	0.40	-0.10
249	Carolina Power & Light	Sherwood H. Smith, Jr.	-0.61	0.45	-0.16
250	Navistar International	James C. Cotting	-1.61	0.20	-1.41

Note: Sample consists of CEOs in the 250 largest companies, ranked by 1988 sales.

THE BEST OF THE REST: CEO INCENTIVES IN SMALLER COMPANIES

RANK	COMPANY	CEO	TOTAL EFFECTS (OVER TWO YEARS) ON CEO WEALTH CORRESPONDING TO EACH $1,000 CHANGE IN SHAREHOLDER WEALTH		
			CHANGE IN ALL PAY-RELATED WEALTH	CHANGE IN THE VALUE OF STOCK OWNED	CHANGE IN TOTAL CEO WEALTH
1	Berkshire Hathaway	Warren E. Buffett	$0.06	$446.77	$446.83
2	Williamette Industries	William Swindells, Jr.	0.64	427.10	427.75
3	Riggs National	Joe L. Allbritton	1.22	358.19	359.40
4	Hilton Hotels	Barron Hilton*	0.85	245.90	246.75
5	Timken	William R. Timkin, Jr.*	5.20	142.46	147.66
6	United Missouri Bancshares	R. Crosby Kemper	1.08	118.65	119.73
7	Zions Bancorporation	Roy W. Simmons	2.76	89.17	91.93
8	First Empire State	Robert G. Wilmers	18.72	71.63	90.36
9	Florida National Banks	John D. Uible	1.85	87.66	89.51
10	Equimark	Alan S. Fellheimer	15.53	72.28	87.81
11	W.W. Grainger	David W. Grainger*	0.21	79.13	79.34
12	Fin'l Corp. of Santa Barbara	Philip R. Brinkerhoff	54.68	21.41	76.09
13	Golden West Financial	Herbert M. Sandler*	4.48	67.36	71.83
14	Merchants National	Otto N. Frenzel, III	9.59	60.19	69.79
15	First City Bancorp of Texas	A. Robert Abboud	-0.21	58.75	58.54
16	First Security	Spencer F. Eccles	2.63	44.84	47.47
17	Central Bancshares of the South	Harry B. Brock, Jr.*	4.89	38.25	43.15
18	Freuhauf	T. Neal Combs	16.20	21.14	37.34
19	Holiday	Michael D. Rose	14.01	20.94	34.94
20	Cullen/Frost Bankers	Thomas C. Frost*	8.90	25.95	34.85
21	Beneficial Corp.	Finn M.W. Caspersen	3.37	29.87	33.23
22	Yellow Freight System	George E. Powell, Jr.	0.86	30.90	31.76
23	Data General	Edison D. deCastro*	1.89	29.79	31.68
24	Equitable Bancorporation	H. Grant Hathaway	11.01	17.23	28.24
25	Imperial Corp. of America	Kenneth J. Thygerson	24.98	2.52	27.51

Note: Sample consists of CEOs in companies ranked 251 to 430 by 1988 sales. *Denotes founder or founding-family CEO.

BEST PAID CEOS OF LARGE COMPANIES

RANK	COMPANY	CEO	CHANGE IN PAY-RELATED WEALTH CORRESPONDING TO EACH $1,000 CHANGE IN SHAREHOLDER WEALTH				
			CHANGE IN SALARY + BONUS OVER TWO YEARS	PRESENT VALUE OF PAY CHANGE	CHANGE IN WEALTH DUE TO DISMISSAL LIKELIHOOD	CHANGE IN VALUE OF STOCK OPTIONS	CHANGE IN ALL PAY-RELATED WEALTH
1	Paine Webber Group	Donald B. Marron	$4.11	$46.91	$1.18	$7.51	$55.59
2	Carter Hawley Hale	Philip M. Hawley*	0.03	0.54	0.98	21.83	23.36
3	Cummins Engine	Henry R. Schacht	1.11	18.29	0.03	0.14	18.46
4	Walt Disney	Michael D. Eisner	0.72	11.35	0.00	4.27	15.62
5	George A. Hormel	Richard L. Knowlton	0.76	7.47	0.19	4.70	12.36
6	UAL	Stephen M. Wolf	0.01	0.45	0.02	11.57	12.05
7	Fleet/Norstar	J. Terrence Murray	0.72	10.93	0.03	1.02	11.98
8	Continental Bank	Thomas C. Theobald	0.26	2.01	0.04	9.40	11.46
9	Chrysler Corp.	Lee A. Iacocca	0.43	5.38	0.02	4.74	10.14
10	Zenith Electronics	Jerry K. Pearlman	0.77	7.44	0.05	2.27	9.76
11	NCNB	Hugh L. McColl, Jr.	0.76	8.43	0.01	0.63	9.07
12	Masco	Richard A. Manoogian	0.01	2.38	0.16	6.24	8.78
13	FMC	Robert H. Malott	0.01	0.13	0.47	7.82	8.43
14	Turner	Alfred T. McNeill	2.01	4.27	0.27	3.52	8.06
15	B.F. Goodrich	John D. Ong	0.51	4.73	0.14	2.85	7.72
16	Alco Standard	Ray B. Mundt	0.88	5.46	0.88	1.28	7.61
17	Black & Decker	Nolan D. Archibald	0.25	3.89	0.34	3.30	7.53
18	Castle & Cooke	David H. Murdock	0.77	3.70	0.04	3.54	7.29
19	Brunswick Corp.	Jack F. Reichert	0.40	6.59	0.26	0.00	6.85
20	Mellon Bank	Frank V. Cahouet	0.42	3.69	0.65	2.38	6.72
21	Enron	Kenneth L. Lay	0.46	3.99	0.05	2.58	6.62
22	Pan Am	Thomas G. Plaskett	0.25	0.77	0.13	5.55	6.46
23	Toys “R” Us	Charles Lazarus*	-0.13	1.06	0.11	5.27	6.45
24	Norwest	Lloyd P. Johnson	0.22	1.30	0.10	4.98	6.37
25	First Union	Edward E. Crutchfield, Jr.	0.48	5.59	0.03	0.08	5.71

Note: Sample consists of CEOs in the 250 largest companies, ranked by 1988 sales. *Denotes founder of founding-family CEO.

References

Gibbons, Robert and Murphy, Kevin J. "Relative Performance Evaluation for Chief Executive Officers." *Industrial and Labor Relations Review* (February 1990).

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

McLaughlin, Kenneth J. "Rigid Wages?" University of Rochester Working Paper. Rochester, NY: University of Rochester, 1989.

Warner, Jerold, Watts, Ross L. and Wruck, Karen H. "Stock Prices and Top Management Changes." *Journal of Financial Economics* (January-March 1988).

Weisbach, Michael S. "Outside Directors and CEO Turnover." *Journal of Financial Economics* (January-March 1988).