The Increased Risk in CEO Pay: A Response to Paul Krugman

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Abstract

In an October 2002 *New York Times Magazine* article, Princeton economist Paul Krugman discusses how the distribution of income and wealth has shifted dramatically in the United States over the last several decades. He also assumes a dismissive tone with economists' explanations of the recent spike in CEO pay. Reviewing some milestones in the economic literature, this essay argues that though CEO pay has risen, so has its sensitivity to corporate performance—thus keeping with the basic ideas of agency theory.

In an October 2002 *New York Times Magazine* article, Princeton economist Paul Krugman speaks broadly about how the distribution of income and wealth has shifted dramatically in the United States since the more egalitarian times thirty to fifty years ago. Krugman writes adoringly of 1950's and 1960's America, a middle-class society that lacked the mansions, yachts, and high executive incomes of the "new Gilded Age" that has taken shape in the last two decades. Krugman devotes one section of his article to discussing the steep climb of CEO compensation during the last twenty to thirty years. Although his exploration is useful and illuminating, Krugman's claims require some redirection.

There is no doubt that executive compensation has reached unprecedented levels. Krugman cites *Fortune* magazine, reporting that the average annual real compensation of the top 100 CEO's rose from $1.3 million in 1970 to $37.5 million in 1999—an increase of almost 2800%. Meanwhile, the average annual salary in the United States rose only about 10%, from $32,522 to $35,864. Some recent instances of executive pay packages have been

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downright shocking. In 2001, for example, Oracle CEO Lawrence J. Ellison took home $706 million even though Oracle's share price fell 57% in the same year (BusinessWeek, 2002). Surveys of executive compensation that go beyond just the top 100 CEOs tell similar, but less dramatic, stories.

It is also hard to deny, as Krugman emphasizes, that social norms have substantially influenced trends in CEO pay. Krugman likens the rise of "financial permissiveness" to the sexual revolution of the 1960's. A relaxation of old structures, he argues, has prevented public outrage at the explosion of executive compensation. Rakesh Khurana (2002) of Harvard Business School suggests that during the 1980's and 1990's, "investor capitalism" replaced the world of the bureaucratic manager. Institutional investors were unwilling to let a CEO choose his own successor from inside the corporation; they sought instead to pay whatever was necessary for outsiders who could provide bold leadership.

Krugman assumes a dismissive tone when addressing economists' analysis of high CEO compensation levels, arguing that they "did their bit to legitimize previously unthinkable levels" of pay by simply endorsing Gordon Gekko's "greed is good, greed works" mentality. This is a rather unfortunate summary of a very relevant point in today's debates about executive compensation. As CEO pay levels have increased, so has their sensitivity to firm performance—mostly due to the large grants of stock and stock options that executives now receive. As a result, the average CEO's interests have become much more closely linked with those of his shareholders over the past twenty years.

Measuring the Principal-Agent Problem

The potential conflict of interest between shareholders of a publicly owned corporation and the corporation's CEO is a well-known example of a principal-agent problem. Shareholders, or the principals, have one interest—to maximize the firm's value and thus its share price. This is done when the firm undertakes the most profitable projects that it can—projects whose benefits exceed their costs. The shareholders, through a board of directors, hire a CEO, or an agent, to take charge of making and delegating these decisions. Though the shareholders hire the chief executive to make those decisions in their best interests, the interests of the shareholders and the CEO do not necessarily match. While the CEO considers his own private gains and costs when making decisions, the shareholders care strictly about the benefits and costs to the firm.

According to Jensen and Murphy (1990), agency theory predicts that a company's compensation policy will be designed to give a CEO incentives to select and implement actions that increase shareholder wealth. In other words, a CEO's pay should be sensitive to his firm's overall performance. There are many mechanisms through which compensation policy can affect a CEO's private gains and costs, including performance-based bonuses and salary revisions, performance-based dismissal decisions, and the two types of compensation that have most dramatically affected executive compensation during the last twenty years: grants of stock and stock options.

Economists can measure the strength of the link between a CEO's compensation and his firm's performance. The most relevant metrics must account not only for changes in salary and bonus associated with the firm's performance, but also for changes in *wealth* associated with the same. Salary and bonus alone constitute only a fraction of many CEOs'

compensation packages, and some chief executives (including Oracle's Ellison) receive *no* salary and bonus. The changes in wealth that economists must account for come from the grants of stock and stock options.

One important measure of pay-performance sensitivity can be defined as *b*, the dollar change in the CEO's wealth associated with a dollar change in the wealth of shareholders. If *b* is 0, shareholder wealth has no relation to the CEO's wealth. If *b* is 1, in effect the CEO owns the firm and his own wealth fluctuates dollar-for-dollar with the firm's value. If a CEO is considering a nonproductive but expensive "pet project" that will pay him $100,000 but will diminish the firm's equity by $10 million, he needs to have a b-value greater than .01 for him to make the right decision in the shareholder's eyes.

Another important measure of pay-performance sensitivity is the elasticity of total compensation, where "total compensation" again refers to the CEO's direct pay and changes in stock and stock option wealth. The elasticity is the percentage change in total compensation divided by the percentage change in firm value. A CEO whose compensation increased by 100% as his firm's performance increased by 50%, for example, would have a total compensation elasticity of 2.0.

Tracking the Pay-Performance Relationship

Economists have long sought to pin down the empirical link between executive pay and corporate performance. Lewellen's and Huntsman's "Managerial Pay and Corporate Performance," published in the September 1970 issue of the *American Economic Review*, was one of the earliest papers to show that salaries are positively related to accounting profits. A steady stream of literature followed suit into the early 1990's, establishing a weak but positive

correlation between pay and performance. Rosen (1992) surveys the large literature on CEO compensation and concludes that "evidence from several independent studies and samples leaves us fairly secure that" compensation elasticity is in the 0.10 to 0.15 range. An elasticity of 0.10 implies that a CEO whose work produced annual rates of return of 20 percent would be paid only 1 percent more than a CEO whose work produced annual rates of return of 10 percent. The problem with the literature Rosen surveys, however, is that the data take neither stock ownership nor stock options—currently the two most significant sources of CEO income—into account.

In an influential paper, Jensen and Murphy (1990) are apparently the first ones to incorporate stock and stock option ownership into their analysis. Using data from 1974-1986, they find that CEO wealth changes by $3.25 for every $1,000 change in shareholder wealth (yielding a *b*-value of 0.00325). Of each $3.25 change in CEO wealth, an average of only 30¢ results from changes in cash compensation (salary and bonus). The most significant component of the $3.25 is common stock ownership, including exercisable stock options and shares held by family members or connected trusts. The median CEO in Jensen and Murphy's sample holds 0.25% of his firm's common stock, implying that the value of the stock owned by the median CEO changes by $2.50 when the value of the firm changes by $1,000. Jensen and Murphy quite logically question whether a change of $3.25 per $1,000 is sufficient to have a meaningful influence on the alignment of CEO and shareholder incentives: "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?"

Though Jensen and Murphy use U.S. Work Projects Administration data from 1934-1938 to conclude that pay-performance sensitivity for top-quartile CEO's has fallen since that

time, Hadlock and Lumer (1997) show that this conclusion is inaccurate. The latter pair's results are driven by size effects; modern firms are, on average, larger than firms in the 1930's, and arithmetic pay-performance sensitivities tend to decline with firm size. Hadlock and Lumer add controls for firm size in their regression analysis and find no evidence for Jensen and Murphy's assertions. Instead, Hadlock and Lumer show that pay-performance sensitivity has *increased* almost fourfold since the 1930's, suggesting a widespread increase in the use of incentive-based compensation. Though Jensen and Murphy wonder if a *b*-value of 0.00325 provides any meaningful incentives, it turns out that the figure indicates a relatively sensitive link between pay and performance.

In a thorough update on pay-performance sensitivity, Hall and Liebman (1998) show that measures of *b* and of total compensation elasticity have increased dramatically in recent years due to the increase in equity-based pay. Their data tracks the middle of the time period about which Krugman is most concerned; they use a 1980-1994 data set of CEOs in the largest, publicly traded U.S. firms. Their data also contain detailed information on CEO holdings of stock and stock options.

Their main empirical finding is that CEO wealth often changes by millions of dollars for typical changes in firm value. The median total compensation for CEOs is about $1 million if their firm's stock has a thirtieth percentile annual return (-7.0 percent), for example, and is $5 million if the firm's stock has a seventieth percentile annual return (20.5 percent). Thus, there is a difference of about $4 million dollars in compensation for achieving a moderately above average performance relative to a moderately below average performance. The difference in compensation between a tenth percentile firm performance and a ninetieth percentile performance, as Hall and Liebman report, is more than $9 million.

Since the recent spike in pay has come in the form of stock options, the relationship between CEO pay and firm performance has increased substantially just in the last 14 years. As one example, the median elasticity of CEO compensation with respect to firm market value more than tripled from 1.2 to 3.9 between 1980 and 1994. This elasticity for 1994 is about 30 times larger than the salary and bonus elasticities reported before, which ignore sensitivity generated by stock and stock option revaluation. Also, Hall and Liebman find a mean total compensation elasticity of 2.6 and a *b*-value four times greater than Jensen and Murphy's.

The Realities of Today's Executive Compensation

Paul Krugman probably had CEOs like Oracle's Ellison in mind when writing that "huge pay packages have been going as often as not to executives whose performance is mediocre at best." As the literature shows, this statement turns out to be entirely false. Though CEOs tend to be very well compensated, and mediocre ones can certainly bring home large paychecks, good ones earn much more than their poorly performing counterparts. The simple fact is that as pay-performance sensitivity has increased, poorly performing CEO's stand to lose tremendous sums of money from year to year if they do not perform well. Ellison's $706 million windfall is often cited as the single-largest amount that an executive has received in compensation. The less obvious approach, however, indicates that it could reflect the single-largest *loss* an executive has suffered; with Oracle stock down 57% for that year, the value of Ellison's option holdings fell by more than $2 *billion* (BusinessWeek, 2002). As Hall and Liebman report, "CEOs do in fact experience wealth declines and... the declines are both frequent and large." In 1994, about 24 percent of the executives in their

sample actually lost money during the year, losing a mean of $13 million and a median of $3 million. Even over a three year period, 10 percent of CEOs lost a mean of $74 million and a median of $15 million.

Due mostly to grants of stock and stock options, executive pay has increased dramatically over the last thirty years—no one questions that fact. But Krugman is overly dismissive with one of the economics-based explanations of the rise: CEOs are being held increasingly accountable for firm performance, and the changes in their pay tend to vary dramatically depending on the success of their corporations. While Krugman writes longingly about the middle class's heyday, if agency theory were the judge, executive pay trends may be moving in the right direction.

Works Cited

BusinessWeek. "Executive Pay." BusinessWeek Online, 15 April 2002. Accessed 17 March 2003. [Available: http://www.businessweek.com/magazine/content/02_15/b3778012.htm]

Hadlock, Charles J. and Gerald B. Lumer. "Compensation, Turnover, and Top Management Incentives: Historical Evidence." *Journal of Business*. 70(2), April 1997, 153-87.

Hall, Brian J., and Jeffrey B. Liebman. "Are CEOs Really Paid Like Bureaucrats?" *Quarterly Journal of Economics*. 113(3), August 1998, 653-691.

Jensen, Michael C. and Kevin J. Murphy. "Performance Pay and Top Management Incentives." *Journal of Political Economy*. 98(2), April 1990, 225-64.

Khurana, Rakesh. *Searching for a Corporate Savior: The Irrational Quest for a Charismatic CEO*. Princeton, NJ: Princeton University Press, 2002.

Krugman, Paul. "For Richer." *New York Times Magazine*, 20 Oct 2002.

Lewellen, Wilbur G. and Blaine Huntsman. "Managerial Pay and Corporate Performance." *American Economic Review*. 60(4), September 1970, 710-20.

Rosen, Sherwin. "Contracts and the Market for Executives." *Contract Economics*, Lars Werin and Hans Wijkander, eds. Cambridge, MA: Blackwell, 1992, pp. 181-211.