CL 04

Sir David

I just wanted to offer words of encouragement from the "front lines" in the war on options accounting. I have read about your crusade and am in 100% agreement with your reasoning. As a portfolio manager, I've spent the last 2 years analyzing this issue in-depth and have come to the conclusions outlined in my attached essay, "Options Myths." Given that I work in San Francisco, I am near 'ground zero' for options use and have seen firsthand how easily 'free' options are abused by the tech industry. I've also attached an excellent paper from Brian Hall of Harvard University, which details why options are actually a 'less efficient' form of equity incentive than restricted stock and yet options are used, in practice, by a 15-to-1 margin over restricted stock due to their more favorable accounting treatment. I hope you find my essay and Brian's paper helpful and supportive in your efforts.

Sincerely,

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From: Broad, Ken
Sent: Thursday, November 14, 2002 5:31 PM
To: 'director@fasb.org'
Subject: Options are an expense-Don't let the Tech Lobby Stop you from doing the right thing!

I'm sorry I didn't submit comments by the Nov. 4th deadline, but I just noticed TechNet's proposed and self-serving guidelines. I am a portfolio manager and, given my location in San Francisco, have witnessed first-hand the deleterious effect of the "free" options culture in Silicon Valley. I have also spent the last 18 months researching this issue in-depth by reading relevant academic papers and debating technology and other CFOs on the topic. I have attached my summary conclusions in an essay entitled, "Options Myths," and also have attached an excellent paper by Brian Hall of Harvard. Brian highlights why options are "less efficient" equity motivators and yet are used by a 15-to-1 margin over restricted stock BECAUSE OF THEIR MORE FAVORABLE ACCOUNTING TREATMENT. Let me give you a telling quote from the CFO of a major software firm: "THE ACCOUNTING FOR OPTIONS IS GARBAGE-IT'S BETTER THAN A FREE LUNCH. I DON'T HAVE TO RECORD AN EXPENSE, I GET A TAX BENEFIT AND I GET TO COLLECT THE STRIKE PROCEEDS." Options, due to their favored treatment, are the accounting equivalent of a free lunch-is it any wonder their use has skyrocketed?

TechNet's statement that "we firmly believe that employee stock options do not represent an expense" is patently absurd and obviously self-serving. As Warren Buffett said so succinctly: "If options aren't a form of compensation, what are they? If compensation isn't an expense, what is? And, if expenses shouldn't go into the calculation of earnings, where in the world should they go?"

TechNet's claim that "we do not believe that an accurate, reliable method of valuing stock options currently exists" is also disingenuous. You might want to ask Siebel in particular, a member of the TechNet cabal, why they were willing and able to use Black-Scholes to calculate the $1.85 "fair value" of deep-out-of-the-money options they recently repurchased from their employees for cash and stock. Isn't it funny that when it comes to determining the value of options for expense purposes, Black-Scholes isn't accurate and yet when it comes to putting cash in their employee's pockets for out-of-the-money options, they are able to use Black-Scholes? Siebel has been among the most egregious options issuers and would make an excellent case study into why options should be expensed. Siebel reported a net income of roughly $250 million last year, but issued about $1.8 billion (Black-Scholes "fair value") in options that weren't expensed. One can quibble with the exact value of the options, but the magnitude of the wealth transfer renders Siebel's GAAP net income of $250 virtually meaningless. I would strongly argue that there is zero residual value for outside shareholders.

I recognize that I am a "David" fighting the omnipotent TechNet "Goliath" and hope that FASB is able to withstand the well-financed and orchestrated Tech lobby this time and do the right thing. I would be happy to further share my obviously strong and, I believe, well researched and UNBIASED opinion on the topic of options and their accounting treatment.

Sincerely,

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Debunking Hi-Tech Options Myths

The battle lines are drawn on the debate over expensing options and rhetoric on the issue seems to increase with every downtick in the market-justifiably so. Of important note is the fact it is an extremely vocal, organized and well-financed minority that opposes the expensing of options: the tech industry, the venture capitalists who back them and the politicians who receive large contributions from them. All have clear biases for keeping the status quo in place and fear losing the proverbial 'free lunch' that options represent. Having Andy Grove and Harvey Golub pontificating on the virtues of not expensing options, as the Wall Street Journal recently did, is like asking a jackpot winner to expound on the evils of gambling-its not going to happen.

For anyone who has done in-depth research on this topic and has a modicum of intellectual honesty, the conclusion is quite clear: options, due to their favorable accounting treatment, systematically overstate every facet of a company's financial statements. Earnings are overstated because the current accounting "cost" of options when granted at-the-money is exactly zero, despite having very real economic value to the recipient and equivalent cost to the issuing firm's shareholders. Cash flow from operations is enhanced by reduced compensation expense and the tax benefit recognized upon the exercise of options. Lastly, the balance sheet is buttressed by the cash flow benefits just mentioned, plus the strike proceeds collected when options are exercised-in essence an evergreen equity offering at below market prices. The strength of many tech balance sheets can be traced to this prolific issuance of equity for options.

Silicon Valley's disingenuous arguments against the appropriate expensing of options are predictable and largely representative of the tech industry's self-serving position. It is time to debunk some common options myths perpetuated by the tech crowd and their paid lackeys.

- **Options <u>do not</u> directly align the interests of management with shareholders**. Those who perpetuate this fallacy ignore the asymmetric return profile of options, which is akin to that of a lottery ticket. Returns are leveraged on the upside and 100% on the downside. As a result, options can incent imprudent risk-taking, especially when combined with short vesting periods. Restricted stock grants, with long vesting periods, provide a much tighter alignment of interests as Brian Hall, of Harvard Business School, argues in his recent study, "*Incentive Strategy II: Executive Compensation and Ownership Structure*." He details the myriad of problems attendant with options use and explains why plain-old stock is a "more efficient" equity motivator. Despite the clear benefits of using stock instead of options, he concludes "this analysis suggests that the uneven accounting treatment of compensation is creating a value-destroying bias in favor of options and against cash, stock and other forms of equity pay." Accounting is supposed to measure results, not drive sub-optimal operating decisions.

- **The diluted share count <u>does not</u> capture the real economic cost of options**. Diluted share count only measures the historical options liability at a particular point in time. It does not appropriately reduce the earnings stream being capitalized to reflect substitution of options for cash compensation. Enron's Jeffrey Skilling admitted the benefits of this substitution effect during his congressional testimony, "you issue stock options to reduce compensation expense and therefore increase your profitability." Those who continue to perpetuate this fallacy should read, "*The Economic Dilution of Employee Stock Options: Diluted EPS for Valuation and Financial Reporting*" (Core, Guay & Kothari), which

concludes that the current treasury stock method "systematically understates the dilutive effect of outstanding stock options, thereby upwardly biasing diluted EPS."

- **Options often do not promote outright stock ownership**. Most companies grant options annually to their employees and anecdotal evidence suggests employees are often quick to sell their stock after exercising. This is typically for diversification reasons, which defeats the purported purpose of building a direct ownership stake. Stock purchase plans and restricted stock grants more efficiently promote outright stock ownership, but are underutilized due to their less favorable accounting treatment.

- **Expensing of options will not cause Silicon Valley's level of innovation to grind to a halt**. It will simply put their businesses on a level playing field, in terms of accounting, with those that pay cash or restricted stock or virtually any other form of compensation that is expensed. What it will end is the charade of inflated financial results that enriches VC's and employees at the expense of unwitting investors.

- **Options are most definitely a form of compensation.** To argue otherwise is absurd. As Coke's CFO stated, "there's no doubt that stock options are compensation, if they weren't, none of us would want them." There has been a massive shift towards equity pay over the past 2 decades for most top executives and "bonus changes are in the rounding error relative to annual changes in stock and option holdings" according to Brian Hall. A number of prominent tech executives, including John Chambers and Tom Siebel, are currently working for an annual salary of $1 and received zero cash bonus in the most recent fiscal year. Cleary, they are hoping to "get paid" via the massive options grants that each receives on an annual basis. How is an income statement at all reflective of reality, when the total CEO compensation expense recognized on the income statement is sixty-two cents, after-tax?

- **Broad-based options plans do not create an excuse for not expensing options**. Giving options to lower-level employees sounds altruistic, but is generally misguided. According to Brian Hall, "from the perspective of any one worker in a very large company, the connections between effort and stock price is fairly small and likely to be swamped by other factors." This "suggests the possibility that options are being used too heavily in broad-based compensation plans, perhaps because of the distorted accounting treatment….it seems likely that broad-based option plans are inefficiently substituting for cash-based and other forms of compensation." Again, an accounting loophole appears to be driving sub-optimal operating decisions.

- **Options are absolutely a real cost to the corporation**. Options are granted as incentive compensation and compensation is a cost of doing business. It is easiest to see the real cash cost of options by noting that the tech industry spends billions of dollars each year repurchasing stock in an effort to mitigate the dilutive impact of options and yet shares outstanding continue to grow. Options effectively force companies to sell low and buy high and the cash used to fund repurchases is cold hard cash lost to the company and shareholders.

- **Options are not impossible to value.** Options pricing using Black-Scholes provides a reasonable approximation of value and Coke's novel method of averaging actual bids from multiple investment banks is brilliant and probably the optimal pricing method. Just

because an expense must be estimated, like the value of goodwill, depreciation or loss reserves, doesn't mean it should be ignored.

Given the current crisis of confidence, it is both sad and pathetic that the tech industry refuses to do the right thing and reform their egregious options practices. As with alcoholism, the first step to recovery is admitting you have a problem. Particularly galling is that executives who do not adopt the pro-expensing position are ignoring the explicitly stated desire of investors and regulators. The Council of Institutional Investors voted to back the expensing of options by a 5-to-1 margin. A global AIMR survey found that more than 80% of analysts and portfolio managers believe stock options are a form of compensation that should be expensed. Prominent and highly-respected investors, including Warren Buffett, Bill Miller and TIAA-CREF are all critics of the current system of accounting for options. Standard & Poors, a completely independent analytic organization, determined that options should be an expense in determining 'core earnings.' Alan Greenspan endorses expensing options and former SEC Chairman Arthur Levitt has stated that not pushing through options expensing was the single biggest mistake of his 8 year tenure as Chairman of the SEC. Lastly, regulatory bodies like the IASB and FASB, both have clear positions in favor of expensing options. Management teams are hired to run businesses for the benefit of shareholders, and those that ignore the clear will of owners and regulators do so at their own peril.

Perhaps the most fascinating aspect of the options debate is that expensing options is just a bookkeeping entry, a non-cash charge like goodwill amortization that tech firms are already so good at pro-forma-ing out of existence. Nothing changes in the actual operations or cash flow of the corporation. So why is the tech industry so afraid of this phantom charge? Because it will serve to highlight for less sophisticated investors just how badly they've been getting pick-pocketed. As Brian Hall suggests in his study, the complexity of options valuation and accounting "undermines transparency and lack of transparency facilitates abuse." Greenspan's recent comments on this topic are also quite revealing: "If investors are dissuaded by lower reported earnings as a result of expensing, it means only that they were less informed than they should have been. Capital employed on the basis of misinformation is likely to be capital misused." Again, it is a biased minority that is against expensing options. Virtually every other interested party, including academics, investors & regulators agree with Warren Buffett's simple Socratic line of reasoning: "If options aren't a form of compensation, what are they? If compensation isn't an expense, what is? And, if expenses shouldn't go into the calculation of earnings, where in the world should they go?" The tech industry is simply afraid of the ugly truth: after taking options into account, much of Silicon Valley's economic miracle is really just a giant wealth transfer machine.

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BRIAN J. HALL

Incentive Strategy II: Executive Compensation and Ownership Structure

Incentive strategy is the way that organizations, operating within markets, tie rewards and punishments to individual and team performance in order to motivate value-creating behavior. An earlier note—*Incentive Strategy Within Organizations*—analyzed incentive strategy from the perspective of CEOs and general managers, who design incentive systems within their organizations. That is, company managers allocate the things that employees care about—such as promotions, money, influence and working conditions—through formal and informal rules, which in turn affects the motivation and purposeful behavior of the organization's members.

But the rule-makers themselves—the organization's top managers—are also a part of an incentive system. Indeed, one of the main duties of boards is to determine the ways in which top managers are rewarded and punished. Directors determine—or negotiate—the compensation plan for the organization's top managers, and executive compensation design is a key element of an organization's incentive strategy. Thus, this note builds on the framework in *Incentive Strategy Within Organizations*, but takes the analysis up one level in the organizational hierarchy. That is, this note analyzes incentive strategy from the perspective of a company's board of directors and owners. The focus of this note, therefore, is the role that executive compensation and ownership structure (the composition of, and financial structure between, a company's owners) play in motivating value-creating behavior.

Figure A depicts incentive strategy in organizations. The dark arrows show the cascading hierarchy of incentive provision. The top of the hierarchy shows the many types of owners organizations have, from institutional investors to diffuse shareholders to top managers themselves. Ownership structure has important consequences for both the composition and the incentives of the board. The board, in turn, provides incentives to the top managers. This is the focus of this note, depicted by the light shading in **Figure A**. The top managers then design incentive systems for the rest of the organization, as depicted by the dark shading, which was the focus of the earlier note—*Incentive Strategy Within Organizations*.

The circles to the right depict the relevant market environments in which incentive strategy takes place. As we shall see, both capital markets—through takeovers and the market for corporate control—and executive labor markets play key roles in incentive strategy; these markets both influence and constrain the types of incentive strategies that can be implemented. For example, capital markets—both by establishing stock prices and through takeovers (or the threat of

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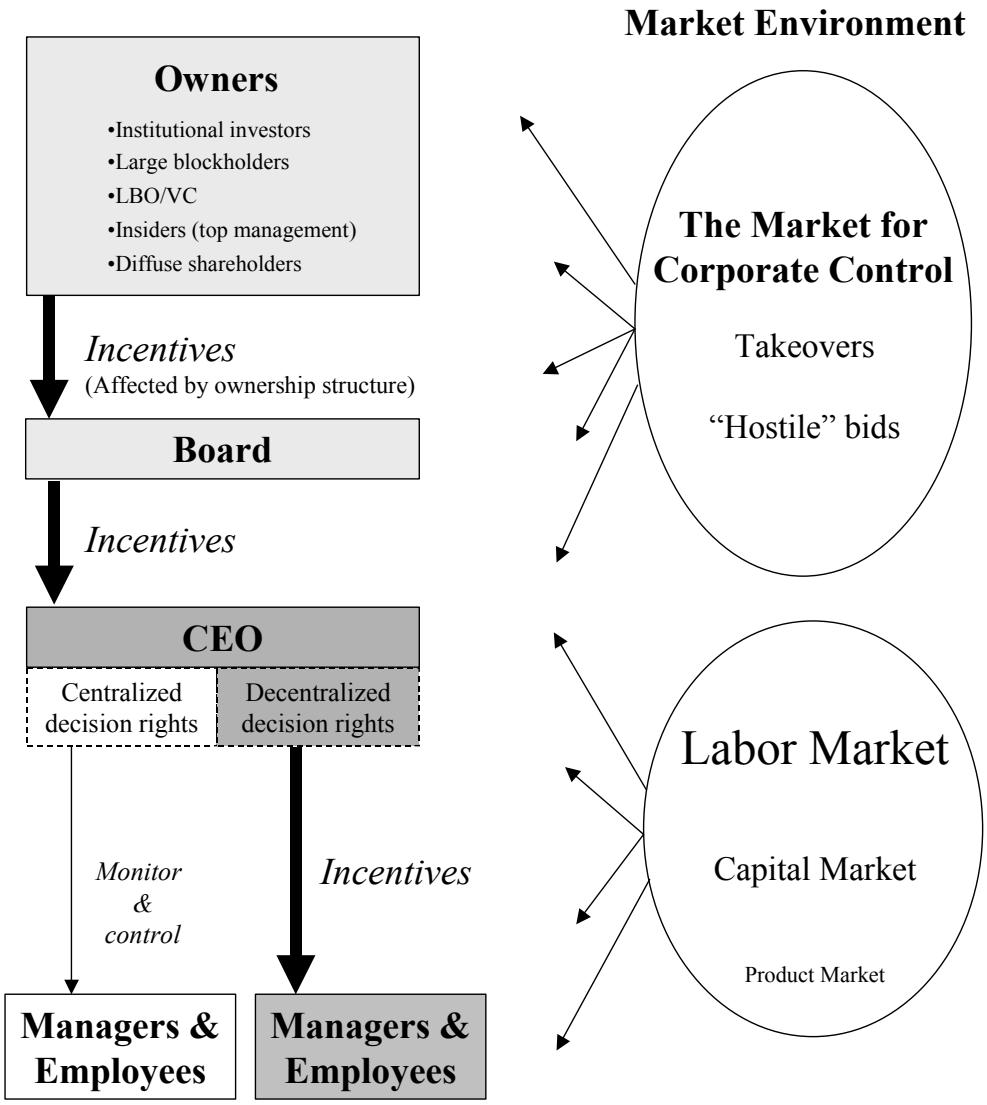
This course note was prepared by Professor Brian J. Hall with the assistance of Research Associate Jonathan P. Lim as the basis for class discussion. This is the companion note to *Incentive Strategy Within Organizations* (HBS No. 902-131).

takeovers)—play important roles in motivating managers and boards. Likewise, executive labor markets constrain the types of contracts that boards can negotiate with top managers.

Figure A Incentive Strategy



Source: Created by casewriter.

The first three sections of this note analyze executive pay and equity-based incentives. In the fourth and final section, the analysis moves up the organizational hierarchy to cover ownership structure and corporate governance. More specifically, the four sections in the remainder of this note provide analysis and discussion of:

- Some basic facts and trends regarding executive pay, and exploration of the link between equity-based incentives and value creation for society, including:

  - The conditions required to strengthen this link—including product and financial market efficiencies.

- Five major challenges of designing equity-pay plans.
- Various issues in executive compensation and equity-pay design, including the:
  - Relative merits of stock and options as incentive-pay instruments;
  - Controversy over the level of executive pay;
  - Accounting treatment of options.
- How governance and ownership structure affect incentives, behavior and company performance, including analysis of the:
  - Limits of financial incentives and the importance of effective board governance;
  - Role of the market for corporate control in governance;
  - Effect of organizational form on incentives and behavior;
  - Major changes in incentives and governance in the U.S. in the last four decades.

Ownership Incentives and Value Creation

Much analysis of executive compensation and corporate governance begins with the proposition that the key problem to be solved is the "separation of ownership and control."[1] There is an "agency problem" because the owners of corporate assets *are separate from* the managers who "control" the assets.[2] Thus, in addition to attracting and retaining a high-quality top executive team, the principal goal of designing executive compensation contracts is to align the incentives of top managers with those of the owners. The potential for misalignment of interests between owners and managers is especially great in the U.S. and other wealthy "common law" countries,[3] which have many widely-held companies owned by diffuse shareholders. By contrast, the companies in most other countries are controlled—and often managed—by families or other large shareholders, which reduces (or eliminates) the separation between owners and managers.[4]

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[1] See Jensen and Fama (1994).

[2] The incentive problem is called the principal-agent problem because the owners (principals) of firms hire managers and workers (agents) whose incentives are not naturally aligned with those of the principal. A seminal paper by Jensen and Meckling (1976) was the first to develop the modern theory of the agency problem. The conflicting incentives of owners and managers was first noted 200 years earlier by Adam Smith in *The Wealth of Nations* (1776), the book that began the field of economics. See also a classic paper by Berle and Means (1932).

[3] These countries have legal systems based on the English legal system and include (primarily) Australia, Canada, Hong Kong, Ireland, Israel, New Zealand, Singapore, the U.K., and the U.S.

[4] For example, LaPorta et al. (1998) find that the widely-held corporation is most common in the richest "common law" countries with strong protections of minority shareholders. They find that the companies of most other countries are controlled by families (or the state), perhaps because of weak protections of minority shareholders. In this case, the principal incentive-alignment problem (or "agency problem") is between majority and minority shareholders, instead of between shareholders and managers. See also Khanna and Palepu (2000a, 2000b) for evidence regarding the prevalence of family ownership in a large sample of countries.

Executive Compensation: Recent History and Trends

The incentive misalignment between managers and owners was one of the key factors that drove the corporate restructurings of the 1980s in the U.S. During that period, companies such as Kohlberg, Kravis and Roberts (KKR) and other buyout firms aggressively bought up underperforming companies, attempting to turn them around by motivating the managers to focus on profitability and shareholder value maximization through incentive alignment (and more active monitoring by the board). In the view of the buyout firms, the key feature of the deals was the fact that the top management team—whether replaced or not—would become co-owners of the businesses along with the buyout firm. In virtually all of these transactions, the top managers became co-owners by purchasing stock with their own money (or by borrowing the money) and from receiving compensation that was largely composed of stock and stock options.[5]

Indeed, the early buyout firms preferred the term management buyouts (which reflected the ownership structure) rather than leveraged buyouts (LBOs, which referred to the way in which the transactions were financed), although the latter nomenclature became more common. George Roberts, one of the founders of KKR, summed up the prevailing view of the importance of ownership incentives: "Just as you are likely to take better care of a home you own versus one you rent, managers and boards with a financial commitment to their business are virtually always more effective in creating both short- and long-term value….Companies perform better when all important parties—management, employees and directors—have the incentive of ownership in the business."[6]

The success of the buyouts in the 1980s (in terms of raising shareholder value) combined with—and perhaps helped cause—the dramatic increase in the influence of institutional investors, who, like the buyout firms, used their power as owners to push managers to increase returns to shareholders.[7] This was further strengthened by the large increase in venture-backed companies in the 1990s. The combined effect was a dramatic increase in the fraction of pay in the form of stock and (especially) stock options for top management teams. For example, the median of the proportion of pay in the form of equity for CEOs was still zero as late as 1984; that is, fewer than half of all CEOs received a stock or option grant in a given year. Equity-based pay for top executives began to increase sharply in the early 1990s and now constitutes more than half of total annual pay. **Figure B** shows the fraction of top executive pay in the form of equity since 1980. The figure also shows the increase in the number of LBO buyouts, which occurred in the early 1980s, and the percentage of company stock owned by institutional investors, which has increased steadily over the period.

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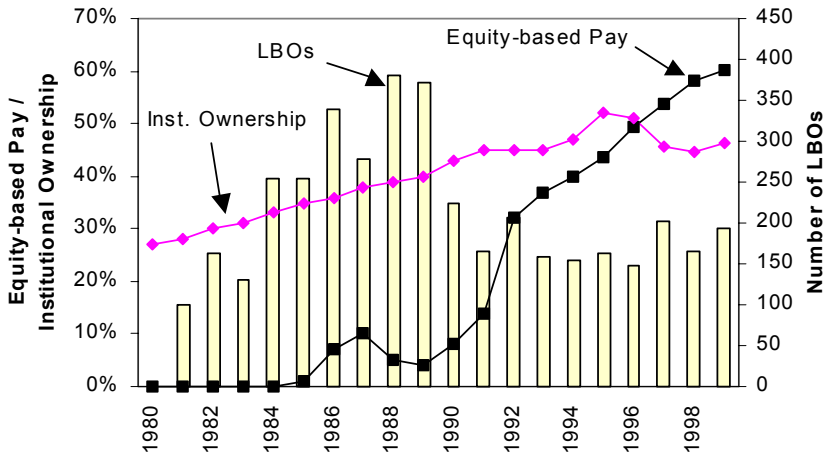
[5] Equity-based pay terminology can be confusing. A brief primer on options is provided in Hall (2000) and a summary of option terminology is provided in **Appendix A** of this note.

[6] See Roberts (1998).

[7] The dramatic changes in the last few decades in corporate governance and managerial incentives are analyzed and discussed at the end of this note.

Figure B Changes, between 1980 and 1999, in: Proportion of Top Executive Pay that is Equity-based; The Number of Leveraged Buyouts (LBOs); and Percentage of Company Stock Owned by Institutional Investors

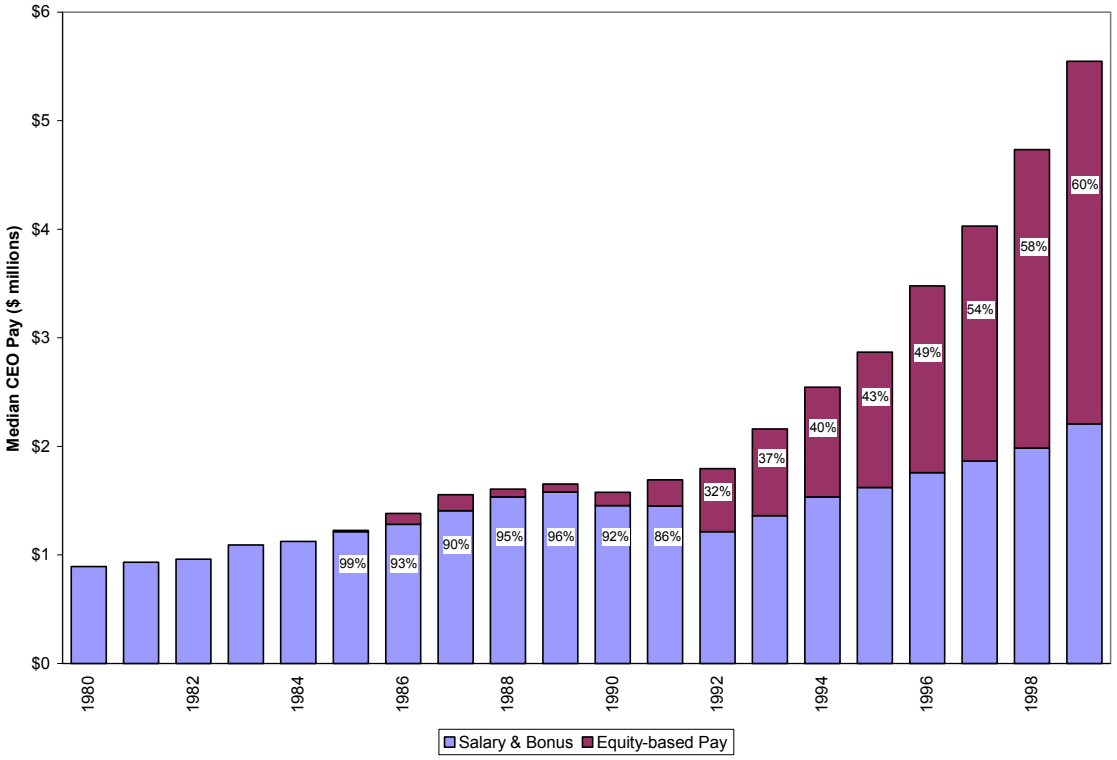


Source: Adapted from Baker and Smith (1998), Hall and Murphy (2002), Hall and Liebman (1998), Gompers and Metrick (1998), Securities Data Co., Spectrum Institutional Data, and CRISP.

The large increase in the equity-pay has been accompanied by a large increase in the level of top executive pay in the United States. **Figure C** shows the level (inflation adjusted) and composition of U.S. top executive pay during the 1980s and 1990s. The equity-pay is valued at grant date (using Black-Scholes-Merton[8]), so does not simply reflect the strong appreciation of the market (and therefore the rising value of executive *holdings* of stock and options) during the period.

[8] Black and Scholes (1973) and Merton (1973).

Figure C The Level and Composition of CEO Pay in the U.S. from 1980 to 1999 (in 1998 dollars)



Source: This data is derived and spliced together from data shown in Hall-Liebman (1998) and Hall-Murphy (2002).

There are two striking features of the figure. First, as mentioned earlier, there has been a massive shift toward equity-pay during the previous two decades.[9] Indeed, because holdings of stock and options accumulate in executive portfolios over time, year-to-year changes in executive pay—where pay is defined broadly to include change in the value of executive equity portfolios—swamp annual changes in cash pay. For most top executives, bonus changes are in the rounding error relative to the annual changes in stock and option holdings. Typical year-to-year changes in stock prices change the value of executive holdings by millions, or even tens of millions of dollars. Empirical evidence suggests that a given change in the stock price changes the value of equity holdings by approximately 50 times more than changes in cash pay.[10]

Incentives tied to accounting profits have become swamped by the incentives generated by executive equity holdings—not because cash incentives tied to accounting profits have become weaker (indeed, if anything, they have become *stronger* during this period), but rather because of the dramatic increase in equity holdings. The bottom line to this analysis is, despite the many abuses and problems associate with the stock option explosion (which will be discussed and analyzed later), it

[9] In a couple of influential papers, Jensen and Murphy (1990a and 1990b) described and analyzed the low pay-to-performance sensitivity that resulted from low stock and option holdings in the 1970s and early 1980s.

[10] See the evidence and analysis in Hall and Liebman (1998), Hall (1999), Hall (2000), Aggarwal and Samwick (1999), Core, Guay, and Verrecchia (2000) and in surveys by Murphy (1999) and Bushman and Smith (2001).

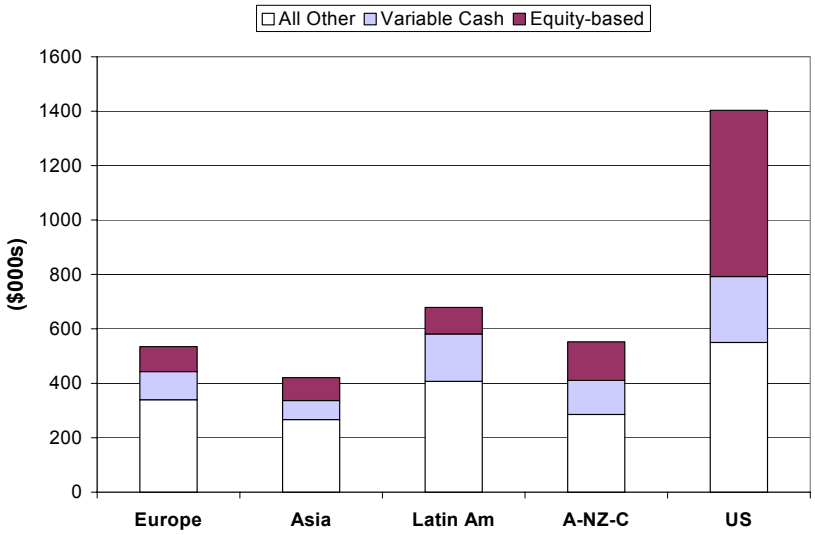
has created a stronger link between executive pay (broadly defined to included changes in the value of stock and option holdings) and *stock-price* performance.

The second striking feature of the figure is the sharp increase in top executive pay during the period. The sharp increase in top executive pay, equal to 9% per year, has dramatically outpaced (essentially every measure of) compensation increases for rank-and-file workers, and has even dramatically outpaced pay growth—of 3.7% per year—for the wealthiest Americans.[11] The only major group of workers who appear to have had commensurate or larger income increases than CEOs during this period are "superstars." For example, professional basketball and baseball players have had similar annualized increases in pay during this period.[12]

Top Executive Pay Around the World

There is strong evidence that U.S. executive pay trends are spreading internationally. **Figure D** shows the level and composition of top executive pay in 23 of the wealthiest countries (averaged by continent) in 2000.[13] The figure shows that top executives in the U.S. make far more on average, in comparable companies, but most of the difference results in the far higher pay in the form of equity and "at-risk" cash pay (i.e., non-salary or bonus pay).

Figure D Top Executive Pay Around the World: Levels and Composition in 2000



Source: Author's calculations using data supplied by Towers Perrin. For industrial companies with $500 million in sales. See also Hall and Khurana (2002).

Table A shows the changes in the composition of pay between 1996 and 2000 in these same countries (and grouped the same way). The data show that in every grouping, the share of equity-based pay (as a percentage of total pay) has increased by 10 percentage points or greater, and all are

[11] This figure is equal to the increase in income of the wealthiest Americans, defined as the annualized increase in the 99.5th percentile cutoff of Adjusted Gross Income (AGI). See Hall and Liebman (2000).

[12] Again, see Hall and Liebman (2000).

[13] The pay data is collected by Towers Perrin consultants around the world and is from similarly sized companies—$500 million—in manufacturing sectors only in order to make the data comparable.

in the range of the 11 percentage point increase in the U.S. The difference, of course, is that the U.S. share of equity-based pay started at a much higher level in 1996 (about one-third) while the 1996 share of equity-based pay in the other international groupings ranged from zero percent (in Latin America) to a high of eight percent (in the grouping of Australia, Canada and New Zealand). As shown in **Table A**, the same pattern emerges when the share of total at-risk pay (equity-based pay plus bonus pay) is considered. The percentage point increase in the U.S. is mirrored in the other countries, but the U.S. share is at a much higher level.

Table A Changes Over Time in the Rest of the World

	Share of Equity-Based Pay			Share of At-Risk Pay		
	1996	**2000**	**Change**	**1996**	**2000**	**Change**
Europe (9) [A]	6%	17%	**11%**	24%	36%	**12%**
Asia (6) [A]	6%	16%	**10%**	23%	33%	**10%**
Latin America (4) [A]	0%	13%	**13%**	26%	40%	**14%**
Aus.-NZ-Can. (3) [A]	8%	20%	**12%**	27%	42%	**15%**
U.S. (1) [A]	32%	43%	**11%**	51%	61%	**10%**
Average (of 23 countries)	6%	17%	**11%**	26%	38%	**12%**

Source: Author's calculations using data supplied by Towers Perrin. For industrial companies with $500 million in sales. See also Hall and Khurana (2002).

[A] Number of countries.

The key point is that the dramatic increase in equity-based pay is not simply a U.S. phenomenon, although the differences in levels remain large. U.S.-style pay practices are either spreading to the rest of the world, or similar forces in wealthy non-U.S. countries have led to similar changes in pay practices internationally.

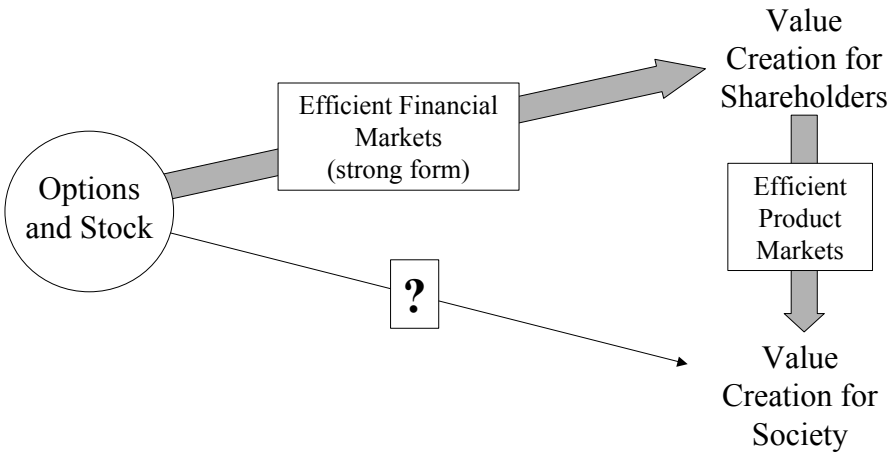
Ownership Incentives and Societal Value Creation

Before analyzing executive pay design, and in particular the way that equity-based pay plans motivate—or fail to motivate—managers to increase company performance and shareholder value creation, it is important to analyze the link between ownership incentives and value creation *to society*. Equity-based pay is meant to motivate managers to increase shareholder value. What conditions must hold for these incentives to motivate *value creation for society*?

We now examine the assumptions that must hold for managerial ownership incentives to lead to greater societal value creation. In addition to helping us understand the assumptions underlying claims that equity-based pay motivates societal value creation, this analysis also helps us understand the financial, market and regulatory infrastructure that connects—or is needed to connect—ownership incentives and value creation. Indeed, significant breaks in the link between ownership incentives and societal value creation create a potential role for public policy since markets, combined with the incentives generated by ownership, can not be expected to motivate the value creating behavior. Thus, this analysis also sheds light on the ways in which ownership incentives create (largely unintended) dysfunctional behavior that has the potential to destroy value.

As depicted in **Figure E** below, (well-designed)[14] option and stock-based pay plans motivate executives to increase value for shareholders. But the connection between actions that increase the NPV of long-run profits and higher share prices require efficient financial markets. Likewise, (appropriately discounted) higher long-run profits—which translate into higher share prices via efficient equity markets—require efficient product markets. That is, equating value creation for shareholders with value creation to society requires that markets—especially product markets, but also labor (and other input) markets—are efficient.

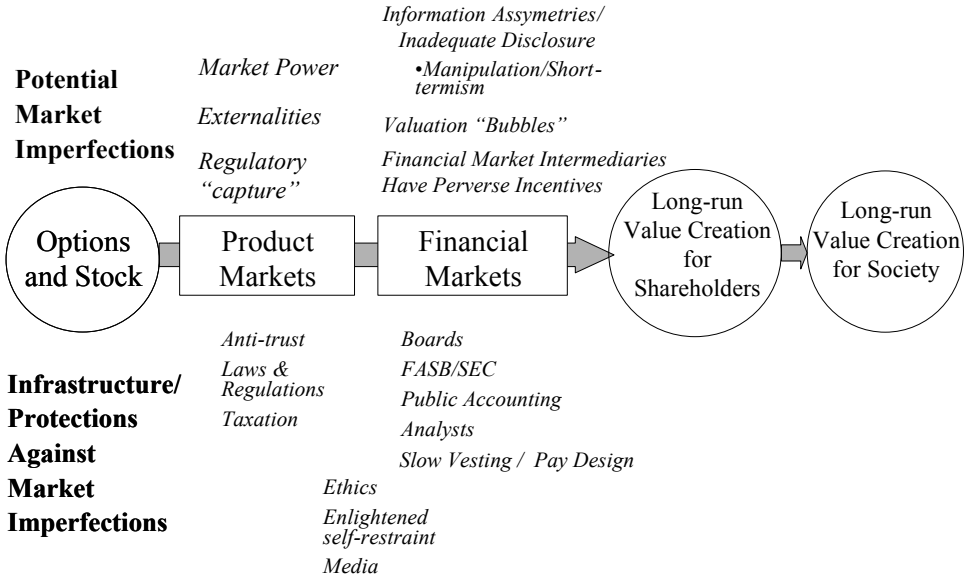
Figure E Equity-based Pay and Value Creation: What Are the Assumptions?



Source: Created by casewriter.

[14] Analysis of how to design equity-based pay to create alignment between managers and shareholders is the main topic of the next section.

Figure F Failures and Protections in the Link Between Equity-based Pay and Societal Value Creation



Source: Created by casewriter.

Thus, market inefficiencies—sometimes called "market failures"—weaken (or break) the link between ownership incentives and societal value creation. We explore inefficiencies, and common protections against these inefficiencies, in both product and financial markets. We begin with product markets. See **Figure F** above.

The Efficiency of Product Markets

When markets are perfectly efficient, then increases in (appropriately discounted long-run) profit maximization leads to societal welfare maximization.[15] Of course, markets are less than perfectly efficient in a large number of ways. Two pervasive inefficiencies, both of which lead to extensive corrective actions by governments, include market power (when a market is not highly competitive, companies can maintain inefficiently high prices) and externalities (transactions that have harmful, or beneficial, effects on parties not involved in the transaction). Thus, although equity-based executive incentives may motivate managers of monopolistic firms to raise profits and share prices through value-enhancing innovations and production efficiencies, such incentives may also motivate managers to find better ways to maintain the company's monopoly position (and monopoly prices) which raises shareholder value while decreasing societal value.[16] Likewise, although equity-based incentives motivate managers to engage in value-increasing cost savings, they increase managerial incentives to engage in value-destroying (but shareholder value-enhancing) increases in pollution.

[15] Note that societal welfare maximization says nothing about how the society's wealth is distributed; so efficient outcomes are not necessarily equitable or fair.

[16] Consistent with this, legal scholar Mark Roe (2001) argues that one of the reasons that European governments are (perhaps sensibly) more leery of shareholder-friendly laws and regulations is because their product markets are less competitive than those in the U.S.

More generally, equity-incentives provide managers with incentives to raise profits and shareholder value in productive ways, but they also provide managers with incentives to exploit inefficiencies in product markets. Thus, equity-based incentives test—and put pressure on—the institutions that are designed to "correct" product market imperfections. In order to minimize the unintended damages, therefore, increases in managerial equity incentives require commensurate increases in—or improved functioning of—the institutions that protect against market inefficiencies, such as anti-trust enforcement, taxation designed to internalize externalities and other laws and regulations.

Finally, note that equity-based pay gives increased incentives to lobby the rule-makers—the legislators, regulators, etc.—to design rules and regulations that are favorable to the manager's specific company. While this lobbying can provide helpful feedback in some cases—helping policymakers to design helpful protections with minimal harm to profitability and efficiency—lobbying is often quite dysfunctional and wasteful. In addition to the real resources that are wasted from the lobbying effort itself, lobbying can be used to pressure rule-makers to skew policy in the direction of special interests and powerful companies. In some cases, the rule-makers charged with enhancing societal welfare through government regulation become "captured" by the companies they are meant to regulate.[17] That is, in response to "rewards" ranging from friendships to campaign contributions to illegal bribes, the rule-makers may design rules that destroy rather than create societal value creation. Thus, the instrument meant to protect against market imperfections—public policy—becomes a corrupt instrument exploited by the managers of profit-seeking companies. Unfortunately, high-powered equity-based pay gives managers increased incentives to increase profits, and one of the ways to increase profits is through value-destroying lobbying.

The Efficiency of Financial Markets

Financial markets—and equity markets in particular—translate the financial performance, and the expected future financial performance, of a company into a single performance measure: the stock price. Thus, the connection between (incentives to raise the) stock price and company performance rely on the efficiency of financial markets. In addition to problems stemming from what appear to be occasional stock price "bubbles"—the causes of which are not well understood by financial economists—perhaps the main "imperfection" in equity markets involves information asymmetries. Top managers have better information about the company's performance than investors, which may tempt managers to try to manipulate the stock price in order to sell shares or exercise options.[18] Such manipulations may involve engaging in actions that raise profitability in the short-run at the expense of the (appropriately discounted) long-run, which are legal but value destroying. Or they may involve manipulating (or falsifying) accounting profits in legal (or illegal) ways.[19]

The case *Al Dunlap at Sunbeam*[20] provides an example of potential stock price manipulation. Both Dunlap and Sunbeam's board believed in aligning managerial and board incentives with those of

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[17] Formally, this is called the "capture theory" of regulation. See Stigler (1971) and McCraw (1984) for further analysis.

[18] Indeed, Carpenter and Remmers (2000) provide evidence that managers do tend to sell shares in an opportunistic way, although the magnitude of this trading advantage appears to be small.

[19] Although more visible and dramatic, this type of gaming is not unique to equity incentives. As emphasized in *Incentive Strategy Within Organizations* (Hall, HBS No. 902-131), virtually all incentive systems can be gamed (though prudent incentive designers will try to minimize this possibility) and many are. The notion that incentives create unintended and often perverse behavior is a general problem of incentive design; it results from the fact that incentives are necessarily tied to imperfect *measures* of value creation, not value creation itself.

[20] Hall, Khurana, and Madigan, "Al Dunlap at Sunbeam," HBS No. 899-218.

shareholders. As a result, Sunbeam's board and top executive team received equity-based compensation. Upon becoming CEO, Dunlap also purchased $5 million of Sunbeam stock. Both Dunlap's words and actions suggested that his Sunbeam equity holdings motivated his decisions and actions. Unfortunately, the stock may have motivated destructive and perverse behavior. Dunlap was fired shortly after concerns (subsequently shown to be well-founded) were raised about Sunbeam's accounting practices, which caused Sunbeam's high-flying stock price to plummet.

There are therefore some obvious and striking similarities between this case and (what is currently known about) the Enron fiasco. (One key difference: Dunlap, unlike Enron's top executives, never sold stock or exercised options when the stock price was high.) Hence, both this case and the Enron disaster raise the issue of the role that stock-based incentives play in motivating executives to falsify accounting profits in order to raise their share price. One of the main rationales for equity-based incentives is that they motivate executives to raise their long-run share price by creating real and sustainable economic value. But equity incentives can also tempt executives to take short-cuts—to raise their stock price via accounting gimmicks, for example.[21]

High-powered equity incentives put pressure on, and expose the weaknesses in, the infrastructure that undergirds the efficiency of financial markets.[22] Loading a rocket with lots of fuel puts pressure on the rocket's other systems (e.g., its combustion system). Likewise, high-powered equity incentives put pressure on—and test—the financial system's infrastructure, including its accounting and disclosure standards, analyst behavior and incentives, corporate governance rules and norms, and the structure of the contracts themselves (e.g., vesting and other features meant to motivate managers to focus on *long-run* value creation).[23] In the cases of Enron and (perhaps) Sunbeam, that infrastructure had cracks. And the disclosure rules perhaps represented the largest crack. But if inadequate disclosure was the faulty O-ring that caused the rocket to explode, equity-based pay appears to be the high-powered fuel that tested the system.

Enlightened Self-Restraint and Ethics

This analysis suggests that inefficiencies in markets—both product and financial—drive a wedge between value accruing to executives (from equity-based pay) and value creation for society. While there are many systems and institutions that are designed to minimize these inefficiencies, these "protections" will always be imperfect, giving stock- and option-holding managers potential opportunities to exploit these inefficiencies. This points to another potential protection against market inefficiencies that weaken the link between stock price increases and societal value creation: the "enlightened" self-restraint of managers. Indeed, in many cases, it is in the manager's long-run interest to refrain from exploiting such inefficiencies—to focus on shareholder value creation while also paying careful attention to other constituencies affected by company decisions. When companies do exploit market inefficiencies in obvious and significant ways, it often comes back to

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[21] Cash incentives based on various measures of accounting profits have the advantage of being less noisy and more controllable than stock prices. However, one big strike against using accounting profits is that they are too easily manipulated by executives. But this analysis suggests that stock-based incentives can also induce manipulation (perhaps, in part, through accounting manipulations). Thus, equity-based incentives do not eliminate incentives to manipulate performance measures, they merely change the nature of the manipulation.

[22] There is fairly convincing evidence in favor of the weak form of the efficient markets hypothesis, which states that stock prices efficiently incorporate all *publicly available information*. But managers have information about companies that is not publicly available. Overcoming this type of informational asymmetry requires a "strong form" of market efficiency, of which there is little evidence in support.

[23] We return to the issue of aligning horizons in the next section.

bite them as aggrieved parties use the media and the political process to fight back through laws, regulations and the legal system.[24]

If enlightened self-restraint is one reason why managers should pay attention to societal value creation in addition to shareholder value creation, ethics is another. It is best, of course, to design systems that do not tempt managers to engage in value-destroying behavior;[25] but incentives will never be perfectly aligned with value-creation. Managers will always be faced with ethical dilemmas, and strong ethical norms and behaviors represent an important and powerful check on necessarily imperfectly designed and enforced incentive schemes.

Managers face tough ethical choices *with or without* large equity holdings. Without incentives tied to shareholder value creation (which roughly describes U.S. executive incentives for several decades prior to the mid-1980s), top executives may face stronger incentives to "empire build"[26] or to purchase excessive perquisites that are privately beneficial but value-destroying (to both society and shareholders). Indeed, this type of value-destroying behavior by executives was one of the major factors that gave rise to the LBO and takeover movement of the 1980s, and the shareholder-activism-led increases in stock-based compensation of the late 1980s and 1990s. But while stock-based pay may lessen executive temptations to build their empires at the expense of shareholders, it introduces new temptations. Decisions related to downsizings, pollution control, safety standards and information disclosure all potentially affect share prices—and the value of managerial stock and option holdings. Incentives aligned with those of shareholders do not make tough ethical choices go away. Equity-based pay just changes the temptations to do harm—lessening some temptations while increasing others.

This analysis does not suggest that the explosion in equity-based pay has, on net, been detrimental to society, or that public policy should attempt to reverse the trend toward equity-based pay. However, it does suggest that claims that equity-based pay has increased shareholder value must be interpreted with the important caveat that shareholder value creation is not equal to societal value creation. The analysis also has this important implication: in order to mitigate the risks and problems associated with Enron-like explosions, the dramatic increase in equity-based incentives in the U.S. (and in the rest of the world) must be accompanied by appropriate strengthening of the infrastructure that guards against market imperfections. That is, either the infrastructure must be strengthened to handle the option-induced pressure on the system, or less fuel (resulting in lower-powered-equity incentives) must be put into the rocket—or some combination of both.

This analysis applies not only to the U.S., but also to the rest of the world. Indeed, the rise in equity-based pay around the world—particularly if international trends in equity-based pay continue—will put pressure on the infrastructures of these countries, many of which have institutions that are weaker and therefore less able to withstand the pressure created by higher doses of equity-based pay.

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[24] This argument does not imply that all regulations and laws help protect against market inefficiencies; governmental "solutions" to market imperfections can be badly designed for a whole number of reasons, and they can therefore destroy rather than create value.

[25] Or behavior that does not destroy value, but simply transfers it from another party to the manager.

[26] Empire building refers to instances when top managers destroy value by increasing the size of their companies because of the personal benefits they receive from overseeing a larger empire. See Jensen (1993) and Shleifer and Vishny (1997) for evidence and analysis that empire building and other agency costs are significant.

Challenges in Equity-Based Pay Design

In addition to attracting and retaining managers and workers, the chief goal of equity-based pay is to create ownership incentives. This is especially true for top executives, but also for lower level managers and workers. The heavy use of options by companies "was rooted in management and board belief that all employees should be owners and everyone should have equity."[27] Akamai president Paul Sagan said, "Equity was a way of doing something that was psychological as well as financial—it was motivational to people and made them part-owners. The sense was that we were working to build a new endeavor. It was a big idea, but not without some risk—so there ought to be some big upside reward that comes with that risk."[28] One Akamai manager commented, "Our [best] employees work for options, not their paycheck…"[29]

It is hard to estimate the degree to which equity-based pay motivates managers and employees to increase shareholder value since reverse causation—soaring stock prices caused the equity explosion—is at least part of the story. Nevertheless, the evidence is strongly consistent with the view that equity incentives motivate executives to raise share prices.[30] Perhaps more importantly, moving closer to the phenomenon, both the words and actions of executives are consistent with the view that equity holdings motivate executives to try to increase share prices. Like many executives, Jack Welch states that "stock ownership changes behavior."[31] In the cases/readings covered in class,[32] Welch at GE, Anders at General Dynamics, Dunlap at Sunbeam, and Dimon at Bank One, all appeared to be motivated by their stock holdings. Indeed, consistent with the principle described in *Incentive Strategy Within Organizations*, the problem with incentives does not seem to be that they fail to motivate, but rather that they sometimes motivate the wrong behavior. Dunlap's behavior is perhaps the most obvious example of perverse behavior motivated by stock holdings.

In what follows, we describe and analyze five challenges of designing equity-based pay plans so that executive (and employee) incentives are aligned with those of shareholders. Aligning managerial and ownership incentives—"turning managers into owners"—sounds like an easy task. Unfortunately, it is not. The remainder of this section considers five challenges of equity-based pay design including:

1. Aligning Time Horizons,
2. Aligning Risk-Taking Incentives,
3. Managing Value-Cost (In)Efficiency,
4. Managing the Leverage-Fragility Tradeoff,
5. Managing Complexity and Abuse.

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[27] Hall, Lane and Lim, "Akamai's Underwater Options (A)," HBS No. 902-069, page 5.

[28] Hall, Lane and Lim, "Akamai's Underwater Options (A)," HBS No. 902-069, page 5.

[29] Hall, Lane and Lim, "Akamai's Underwater Options (A)," HBS No. 902-069, page 9.

[30] For example, Mehran (1995) finds evidence that firm performance is positively related to equity-based pay and holdings of top executives. For additional evidence and analysis on this issue, see a survey on executive compensation by Murphy (1999).

[31] Welch (2001), page 192.

[32] HBS course *CCMO: Incentives*, taught February-April, 2002.

Each challenge is discussed in turn.

Challenge 1: Aligning Time Horizons

Well-designed equity plans motivate sustained—or *long-run*—value creation. Equity-based pay is often criticized for encouraging executives to take a short-run view, to attempt to prop up the stock price in the short-run to make options or stock pay off. The view is that equity-based pay pushes executives to manage short-term earnings to appease Wall Street instead of managing for long-run value creation.

One *advantage* of equity-based pay in this regard, however, is that stock prices are forward looking. While accounting profits measure the past, stock prices measure expectations about the future. Stock prices represent a forecast—the market's best forecast—of how current actions affect future profitability. And investors, who can lose a lot of money for being wrong, have strong incentives to scrutinize executive decisions closely. On this view, equity-incentives are the best protection against short-term thinking, not the cause of it.

Nevertheless, as previously discussed, financial markets are not perfect and executives may be tempted to fool the market by propping up short-term stock prices in order to cash out while the stock price is high. While executives at Enron and Sunbeam appear to be egregious examples of manager's succumbing to this temptation, it may well be that there are many less egregious—and therefore less detectable—instances of executives attempting to manage for short-term rather than long-term value creation.

The obvious solution to this, and one that is perhaps less utilized than it ought to be, is long vesting periods. While many stock and option plans do have reasonably long vesting periods of four or five years, many equity plans have quite short vesting periods. For example, Dunlap's stock and options vested over two years, and when the stock price increased sharply, the contract was renegotiated to *shorten* the vesting period. Moreover, many executive contracts trigger accelerated vesting when an executive retires, ensuring that the horizons of equity incentives for virtually every executive planning his or her retirement are quite short. Allowing stock and options to continue vesting after an executive retires—which ensures that the executive is held accountable for any problems left behind for years rather than months after retirement—seems like an obvious, though partial, solution to this problem.

Although long vesting is not a perfect solution to the horizon problem—there needs to be a payout eventually—it can go a long way toward aligning investor and executive horizons. Why are vesting periods sometimes so short? Because many executives want short vesting—it makes the plan less risky to them—executives are able to successfully negotiate short-vesting periods. Jamie Dimon's successful negotiation of a very short vesting period when he joined Bank One is a typical example.[33] But when negotiating contracts, boards should ask why an executive is "demanding" a short vesting period during the negotiations. What does that say about the executive's future plans and motivations? Or about the executive's confidence that he or she can successfully lead the company for many years to come? An executive's desire for a short vesting period should raise many red flags for boards that negotiate contracts with incoming top executives.

[33] See Khurana (2002), chapter 1.

Challenge 2: Aligning Risk-taking Incentives

One of the chief criticisms of options is that they provide "only upside" and give option holders "heads-I-win, tails-the-shareholders-lose" incentives. That is, options provide asymmetric payoffs and this may induce excessive risk-taking since the executive-recipients of options receive a large payoff if their risky projects pay off but little downside if the risky projects fail.

Before analyzing the risk-taking incentives provided by options, it is helpful to ask the question: if options do increase risk-taking incentives, would that be undesirable? The answer is not so obvious. Although it is hard to know what the optimal level of risk-taking is, there are good reasons to believe that, absent option-induced risk-taking incentives, executives are overly conservative. There are two main reasons for this. First, executives may want to protect their executive positions. As emphasized in the Circon case, a job as a top manager of a publicly traded company brings with it prestige, honor and often a lot of perquisites.[34] It is not irrational for such managers to want to avoid risky bets that may jeopardize such positions. Since executives are much more likely to be fired for very poor company performance, it is quite possible that (at least many) executives are very wary of taking bets—even ones with high expected payoffs—that have a reasonable chance of a large negative payoff.

Second, since most executives have both their financial capital (because they own stock) as well as their human capital (they have firm-specific skills acquired over many years of tenure) disproportionately tied up in one firm, they are not well diversified. Risk-averse executives with a disproportionate amount of wealth in one firm will rationally take too few risks. Thus, for both of these (related) reasons, executives without options might be expected to be overly conservative, on average, with the company assets they manage.

On this view, it is not obvious that option-induced risk-taking would be harmful. Indeed, it may partially (or totally) offset a natural bias in the other direction. Nevertheless, it is also possible that options could create overly risky behavior (either because the bias is trivial or because options more than offset natural biases against risk-taking), especially if the options are way out of the money. Perhaps the most direct evidence we have on this issue relates to the behavior of S&L managers and owners. When the S&Ls became insolvent, or nearly insolvent, in the 1980s, the owners/managers of these institutions were confronted with option-like payoffs. (And federal deposit insurance enabled them to "borrow" from depositors without paying for their risk-taking behavior.) They would become very wealthy if the risky loans paid off, and would lose little or nothing if the bets did not pay off. The result was the S&L crisis, which necessitated a taxpayer-financed bailout of hundreds of millions of dollars.[35] This is evidence that, at least in extreme cases, options (or option-like payoffs) can induce excessive risk-taking.

But do standard options induce more risk-taking? Again the answer is not so clear. And it depends on the specific thought experiment. Consider two questions:

1. In general, do options create stronger risk-taking incentives than stock?
2. Does the granting of a standard option package to an executive (who previously had no options) generally increase risk-taking incentives (i.e., options relative to no options)?

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[34] Hall, Rose, and Subramanian, "Circon (A)," HBS No. 801-403.

[35] For details about risk-taking incentives and behavior in banking, see Esty (1997 and 1998).

The answer to the first question is fairly straightforward. Comparing these two forms of equity, option values increase with higher volatility while stock does not. All other things constant, options should induce greater risk-taking than stock.

The answer to the second question is less obvious because there are two competing effects. For reasons discussed earlier, equity granted to an undiversified, risk-averse manager may cause the manager to become even more risk-averse. For example, it is sometimes claimed that managers who hold options (unless they are significantly out of the money) become overly cautious, not wanting to risk a large future payoff that will occur if the stock price increases at even T-bill rates. The competing effect comes from the fact that the equity holdings are options and therefore increase in expected value in response to higher volatility. Thus, the risk-aversion of executives pushes them to want to lower risk following the option grant, but the higher expected payoff encourages more risk-taking, the net effect of which is uncertain.

Although the effect on executive risk aversion (the first effect) is hard to measure, the relationship between greater risk-taking and higher payoffs can be quantified. Let's examine Sara's Clear Lake options as an example.[36] The effect of an increase in volatility on Clear Lake options is shown in **Table B**. The table shows how the at-the-money options (where both the strike and the stock price are equal to $129) change in value when volatility increases by 10% (or five percentage points), from 50% to 55%. The table shows that the option value increases by about 6%, from $65.8 to $69.9. This represents a "risk-taking elasticity" of 0.6—that is, there is a 6% increase in option value from a 10% increase in volatility.

Table B Incentives to Take Risks: How Option Value Changes as Volatility Changes

	At the Money	In the Money	Out of the Money
Option Value			
• At 50% volatility	$65.83	$180.67	$20.52
• At 55% volatility	$69.86	$184.78	$23.32
Percent increase in option value	6%	2%	14%
Risk-taking elasticity	0.6	0.2	1.4

Source: Created by casewriter.

Notes: All options have a five-year duration, dividends are assumed to be zero and the risk-free rate is 6.3%. For at-the-money options, the stock price is $129 and the exercise price is $129. For in-the-money options, the stock price is $260 and the exercise price is $129. For out-of-the money options, the stock price is $65 and the exercise price is $129. Risk-taking elasticity is the percentage increase in option value divided by the percent increase in volatility.

Note that the risk-taking elasticity is much smaller when options are substantially in the money. For example, if the stock price is twice the strike price—the elasticity is one-third the size—at 0.2. These options create risk-taking incentives that are not too dissimilar from stock since they are so far in the money. Conversely, options that are substantially out of the money—the stock price is half the strike price in the example in the table—have a risk-elasticity of 1.4 or more than twice the risk-elasticity of Clear Lake at-the-money options. Out-of-the-money options are quite responsive to changes in volatility—and the intuition for this is clear: as options fall farther out of the money, the only way to produce a positive payoff is to widen the tails of the distribution. Intuitively, risk-taking

[36] Hall, Musher, and Tufano, "Sara's Options," HBS No. 201-005.

incentives are strongest for out-of-the-money options and weakest for in-the-money options (and weaker still for stock).[37]

Thus, although out-of-the-money options create incentives for risk-taking, it is less clear that standard at-the-money options create very strong incentives for risk-taking. Indeed, it may be that standard options (and especially options that have moved significantly into the money) cause executives to take fewer risks.[38]

To summarize:

- If options do increase risk-taking behavior, it is not obvious whether this behavior is desirable or undesirable from the shareholders perspective.[39]
- Although options create greater risk-taking incentives than stock (and out-of-the-money options create even stronger risk-taking incentives), it is not clear that standard at-the-money options create significant risk-taking incentives relative to the case when no options (or stock) are granted.

Challenge 3: Managing Value-Cost (In)Efficiency

In designing equity-based pay plans, it is important to recognize that there is an important distinction between the cost of the equity-grant to the company (company cost) and the value of the grant to the executive (executive value) or employee. In particular, because executives and employees are risk-averse and undiversified, they generally value the equity-based pay at less than the market value of the company,[40] as approximated by standard models such as Black-Scholes (1973) and Merton (1973). That is, because executives are forced (because of slow vesting or because of board pressure) to hold more company equity than is desired from a portfolio-diversification standpoint—indeed, usually *much more* than the optimal amount—they should rationally discount the value of their company equity holdings.

The company cost of equity, however, is reasonably approximated by the market value of equity (adjusted for early exercise and expected forfeiture, both of which lower cost on average).[41] The market value of equity represents the economic or "opportunity" cost of the equity: the amount the company could receive if it were to sell the equity to an outside investor, rather than giving it to the

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[37] Note that the risk-taking incentives for options also increase as the option package (especially an underwater package) moves close to the maturity date. That is, the "end game" for underwater options can be particularly destructive.

[38] For evidence that options do increase risk-taking relative to stock, see Tufano (1996). He finds evidence regarding risk management in the gold mining industry: Managers who hold options manage less gold price risk while managers who hold common stock manage more gold price risk. Also see Lambert, Larcker and Verrecchia (1991), who fail to find evidence that options increase risk-taking behavior. Indeed, their evidence suggests (weakly) the opposite. Cohen and Hall (2002) find evidence that options increase risk-taking, but the effects are generally small, and only robust for options that have fallen out of the money.

[39] Bondholders, however, are unambiguously worse off if managers increase their risk-taking.

[40] See Hall and Murphy (2000, 2001, 2002), Lambert, Larcker and Verrecchia (1991) and Meulbroek (2001c) for a more detailed analysis.

[41] Note also that, as demonstrated in the dilution exercise (Hall, "Exercise on Employee Stock Option Dilution," HBS No. 902-162), the cost to shareholders is independent of whether companies pay for the options by dilution (issuing new shares to pay option holders) or through share repurchases (which creates a cash cost).

executive (or employee). Thus, as a general matter, the company cost of options is generally higher than the executive value. The value: cost ratio (V/C) depends on many things,[42] including the:

1. extent to which options are in-the-money ("in-the-moneyness" raises V/C),
2. amount of diversification (greater diversification increases V/C),
3. risk-aversion of the executive (greater risk aversion lowers V/C),
4. volatility of the stock (higher volatility lowers V/C), and
5. vesting period of the equity (longer vesting lowers V/C).

Because these variables all affect the V/C ratio, and often significantly, there is a wide range of V/C ratios, which depend on individual circumstances. Nevertheless, there is often a significant gap between value and cost for standard at-the-money option grants, with V/C ratios ranging from 0.5 to 0.9 in most cases. This suggests that options grants must be discounted (relative to Black-Scholes-Merton and assuming the options are not forfeited) by 10 to 50%—with 30% being "typical"—in order to determine the *executive value* of an option.[43] Indeed, Sara[44] estimated that she would be willing to trade off about $130 in Clear Lake options for every $100 in cash, suggesting a V/C ratio of about 77% (or a 23% discount).

The fact that *executive value is less than company cost* should not be surprising.[45] Equity-based pay has significant benefits in terms of providing ownership and attraction/retention incentives. If employees valued equity at their company cost—if they valued equity the same way they valued cash—then companies should pay entirely in stock and options. Thus, providing equity incentives comes at a cost: the V/C inefficiency of options is the price that companies must pay in order to generate the benefits of equity-based pay.

Because equity-based pay is expensive, companies must carefully balance the benefits of equity-based pay (in terms of providing incentives) against the cost (in terms of V/C inefficiency) when designing equity-based pay plans. Because both the costs and the benefits of equity-based pay are hard to estimate, determining the composition of pay (i.e., the relative proportions of cash or equity), the type of equity (e.g., stock, options, etc.), and the extent to which options or stock should be broad-based plans, are difficult and complex issues. We return to the issue of V/C inefficiency in the next section when we discuss the relative merits of stock versus options, and the merits of broad-based option plans.

Challenge 4: Managing the Leverage-Fragility Tradeoff

Options are a "leveraged" incentive device. That is, their upside potential (and downside risk) is leveraged. Options are leveraged because companies can grant employees more options than shares of stock (for the same company cost) since each option has a lower per-share cost than each stock share. As a result, for a given increase in the stock price, the upside gain of a given (market) value of options is generally higher than that of stock.

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[42] See Hall and Murphy (2000, 2001, 2002).

[43] If executives value options at more than their market value, then they should purchase more stock—or more precisely, purchase stock with borrowing in an attempt to replicate the option payoff. They should continue purchasing stock until the value of their marginal option holdings falls below the market value of the options.

[44] In "Sara's Options," Hall, Tufano, and Musher, HBS No. 201-005.

[45] See Hall and Murphy (2001).

Akamai's management felt that the leveraged upside of options was very helpful in attracting and motivating employees. For example, when Akamai's management (briefly) considered giving restricted stock instead of options shortly after its IPO, their compensation consultant argued against it, in part because restricted stock does not have the leveraged upside potential of options.

Leverage

The leverage of options relative to stock can be analyzed by showing how a given value of stock and options changes when the stock price increases and decreases. This analysis is shown in **Table C** below. The entries in the table assume that an Akamai employee was given $100 worth of stock and another one was given $100 worth of at-the-money options. At Akamai, this would require giving approximately two options for every share of stock, since an Akamai option has a Black-Scholes value of about half the value of one share.[46] The entries in the left half of the table show how the *market value* of stock and options (valued according to Black-Scholes) changes when the stock price changes. As seen in the table, increases in the stock price lead to exactly proportionate increases in the value of the stock. This serves as a benchmark in our comparison. In relation, the value of the options package increases more quickly than the stock package when the stock price increases. For example, a 50% increase in the stock price results in an 83% increase in the option package. The reverse is also true. A 50% (75%) decrease in the stock price lowers the stock by 50% (75%), while the options decline by much more—69% (92%).

Note, however, that the above textual analysis (on the left-hand "Market Value" column of **Table C**) fails to take into account that risk-averse and undiversified employees and executives value options (and stock) at less than their market values. The risk-adjusted values of stock and options are shown in the right half of the table. (Again, the values are normalized to 100 at a stock price of $100 to facilitate comparisons.) The key point is that accounting for risk-aversion exacerbates the difference between options and stock. While the value of risk-adjusted stock moves roughly in proportion with the stock price, the value of stock options increases sharply (in percentage terms) when the stock price increases. Options are highly leveraged, and the leverage increases when the fact that executives are risk-averse and undiversified is taken into account.

Fragility

But the leverage of options moves in both directions. As shown in the table, the value of options falls sharply in response to stock price decreases. For example, a 50% (75%) fall in the stock price decreases the value of the options by 81% (98%)! Risk-averse individuals perceive far-underwater options as being almost worthless. While this may be an attractive feature of options in terms of "punishing" executives (and employees) for decreases in their stock price, it also makes option incentives fragile. How does an option-paying company retain and motivate executives if the stock price falls sharply—making options worthless and option-incentives powerless? As seen in the Akamai case, this presents difficult dilemmas for companies.

Table C Comparing the Upside Potential and Downside Risk of Stock and Options

	Market Value		Executive (Employee) Value	
Stock Price	**Stock**	**Options**	**Stock**	**Options**

[46] This is based on the assumption that there is 50% volatility, five-year maturity, no dividends, and a 6% risk-free interest rate. Note that Akamai uses 60% volatility and eight-year maturity for its internal Black-Scholes calculations. However, since early exercise is common and forfeiture is a possibility, we use more conservative assumptions—lower volatility and shorter maturity—to value the options, which is a common practice.

	Market Value		Executive (Employee) Value	
Stock Price	**Stock**	**Options**	**Stock**	**Options**
$0	$0	$0	$0	$0
25	25	8	25	2
50	50	31	50	19
75	75	63	75	54
100	**100**	**100**	**100**	**100**
125	125	140	124	150
150	150	183	148	215

Source: Casewriter calculations. Executive (and employee) value calculations are risk-adjusted measures (certainty equivalents) of the options, taken from Hall and Knox (2002) and Hall and Murphy (2002). They are all (separately) normalized to be equal to 100 when the stock price is equal to $100. That is, although the executive value of any package is lower than the market value, the executive value entries have been normalized to 100 (at a stock price of $100) to demonstrate and highlight the relative sensitivities to stock price changes.

Note: Market value calculations are based on Black-Scholes assuming 50% volatility, five-year maturity, no dividend, and a 6% risk-free interest rate.

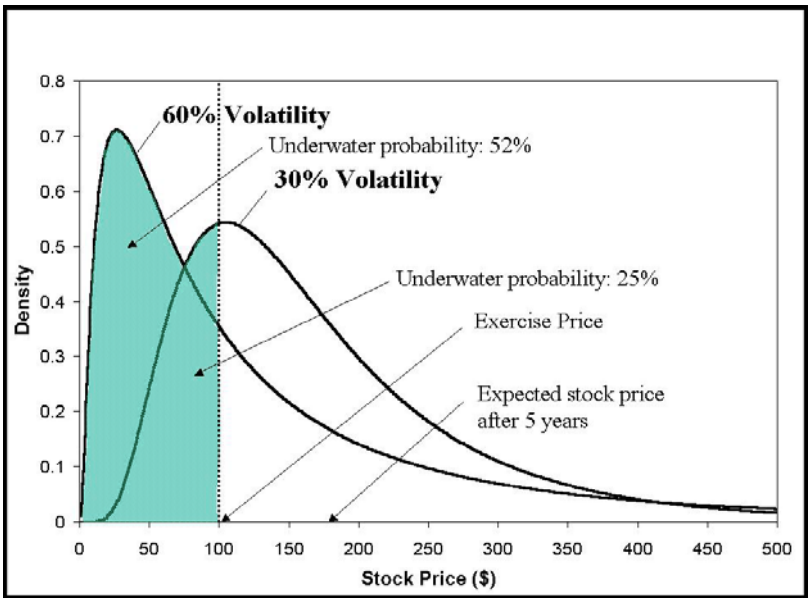
Option fragility is a direct result of the fact that options fall underwater. Unfortunately, even a bull market fails to keep options from being fragile incentive instruments (though it helps!). For example, at the height of the bull market in 1999, about one-third of all options held by US executives in publicly traded companies were underwater.[47] This number, of course, has increased since then, averaging nearly 40% in 2001.[48]

The reason that options can so easily fall underwater is because stock prices are not normally distributed. Instead, they are (to a first approximation) lognormally distributed, which means that they are skewed to the right, as shown in **Figure G** below.

Figure G Stock Volatility and Option Payoff Probability: Five-Year Horizon

[47] See Hall and Knox (2002).

[48] See Hall and Knox (2002).



Source: Hall and Knox (2002)

The notion that stock price returns are skewed to the right should not be surprising—stock prices can only fall by 100% in a year, but they can increase by more than 100%, and often do. Put another way, the median stock price return is less than the average stock price return. **Figure G** shows the distribution of stock prices after five years for a low volatility stock (30%, which is approximately the volatility of a Fortune 500 company) and a high volatility stock (60%, which is common for medium-sized NASDAQ companies). The figure assumes that the stock price has an expected return of 12.5% per year on a non-dividend paying stock. Since the stock price is assumed to start at $100, the expected value of the stock price after five years is $180.

The option is assumed to be granted at the money with an exercise price of $100, so the area to the right of the vertical line (at $100) represents a stock price moving into the money, while area to the left represents stock prices that have fallen underwater. As seen in the figure, the probability of a low (high) volatility stock being underwater is 25% (52%). The five-year average appreciation does not even come close to guaranteeing that a given company's stock will be in the money. Given these results, it is not at all surprising that nearly one-third of all options were underwater in 1999. Stock prices can and do fall, even in rising markets. Options are fragile incentive instruments.

Managing Leverage and Fragility

Designing equity packages that properly balance the tradeoff between leverage and fragility is a difficult task. As shown in **Table D** below, there are three types of equity plans,[49] each of which varies in terms of leverage and fragility. For example, Gerald Weiss[50] received all of his options up-front. (These options, which fix the exercise price and number of options at the beginning, are called up-front grants or mega-grants.) Up-front grants are highly leveraged and have the desirable feature (especially from the perspective of the recipient) of producing a very high payoff when the stock

[49] See Hall (2000) for more detail.

[50] Hall and Madigan, "Gerald Weiss," HBS No. 899-258.

price increases. But, as seen in the Gerald Weiss case, such options are quite fragile. When the stock price falls, the executive's (or employee's) entire option package becomes worthless (or near worthless), with no further equity pay on the horizon.

Fixed-value plans—which pay a certain Black-Scholes value each year—have the opposite problem. They are not as highly leveraged on the upside—as the stock price increases, the recipient receives fewer options with higher exercise prices—but are much more robust to stock price declines—if the options fall underwater, the executive receives more options at a lower exercise price. Fixed-number packages—which pay a fixed number of at-the-money options each year—are intermediate on both counts. In designing equity-based pay packages, companies must carefully balance the advantages of leverage versus the disadvantage of fragility.[51]

Table D Distinguishing Between Three Types of Option Plans

	What varies over time?		Merits	
Option Plan	Exercise Price	Number of Options	Leveraged Upside Potential	Robustness (lack of fragility)
Fixed Value	Yes	Yes	Least	Most
Fixed Number	Yes	No	Intermediate	Intermediate
Mega-grant	No	No	Most	Least

Source: Created by casewriter.

The Downside Risk of Options

Finally, note that the difficulties in designing multi-year option plans that are robust to stock price downturns underscore an important point about options (which may be exceedingly obvious by now!): options have downside risk, despite arguments often made to the contrary. Gerald Weiss understood the downside risk of options so well that he negotiated almost absurd protections—indeed, the protections were so incredible on paper that they failed to protect in reality. If options have value—and value can decrease—then options have downside risk. Indeed, the problem with options is not that they do not have downside risk. Rather, it is the opposite: they have so much downside risk that when the stock price falls, they quickly lose value as a retention and motivation device. Options are fragile incentive instruments.

Challenge 5: Managing Complexity and Abuse

Equity-based pay, especially option-based pay, is generally comprised of complex financial instruments, which makes it hard for equity holders to understand the value of their pay, or their portfolio. This presents two problems. First, to the extent that boards, managers and employees do not understand the value of options (and the way that this value changes with stock price

[51] For more detailed analysis of the relative merits of each of these types of plans, see Hall (2000).

fluctuations), their usefulness as a compensation and incentive device is undermined. Second, the complexity of equity-based pay may lead to abuses and misallocations of value, since boards do not always understand how much or little value they are transferring to executives when they make option grants. And when they do understand, boards that are overly friendly with top executives may use the complexity—and lack of transparency—of equity packages to make overly generous grants to their friends.

As just one example, Apple CEO Steve Jobs was given an option grant with a Black-Scholes value in excess of $500 million.[52] Likewise, Tyco's CEO Dennis Kozlowski was granted nearly 6 million options—5.1 million new options in Tyco, plus 800,000 options in the Tycom subsidiary—which had a Black-Scholes value of $81 million.[53] Al Dunlap at Sunbeam received an option package of about $75 million.[54] Although it is hard to prove, these grants seem excessive in that it is difficult to imagine that the size of these packages was necessary for either motivation or retention purposes. Did the board fully understand the value of the transfer they were making? Would such grants have been possible if the value of the (expected) transfer from shareholders to executives was less complex? It is not hard to imagine that complexity undermines transparency and lack of transparency facilitates abuse. The management of equity-based pay abuse is a major challenge for boards.

Executive Pay and Equity-based Pay Design

This section analyzes and discusses three other issues related to executive pay and equity-based pay design. These issues include:

- Analysis of the relative merits of options versus stock.
- Equity-pay abuse and the executive pay controversy.
- Controversy regarding the accounting treatment of options, including potential distortions:
    - to tradeoffs between pay plans (cash versus broad-based option pay, stock versus options, indexed versus non-indexed options, etc.)
    - in the use of broad-based option plans.

1. Options versus Stock

It is noteworthy that the predominant form of equity-based pay in the U.S. is options rather than stock. But, as the preceding analysis suggests, stock has some significant advantages relative to options. It is helpful to review and summarize these advantages, three of which stand out.

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[52] This is based on the author's Black-Scholes-Merton calculation. See also Geoffrey Colvin, "The Great CEO Pay Heist," *Fortune*, June 25, 2001.

[53] Also, he received 800,000 shares of restricted stock on January 22, 2002, in a "retention agreement" detailed in the Tyco December 31 10-K filing. Unlike the millions of shares Kozlowski was granted in the past, 100,000 shares of this grant vest annually regardless of Tyco's performance. With the stock price closing at $47.55 a share on the day they were granted, the 800,000 shares of restricted stock were worth $38 million. Mark Maremont, "Tyco CEO's Stock Options Yield $99.9 Million Gain," *Wall Street Journal*, January 30, 2001.

[54] Hall, Khurana, and Madigan, "Al Dunlap at Sunbeam," HBS No. 899-218.

Stock Is a More Robust Incentive Instrument

The incentives of options are fragile because of their non-linear payoff structure. That is, unlike stock and other types of linear incentive instruments, the incentives provided by options change as performance improves or declines. In particular, option incentives—both ownership incentives and retention incentives—become weaker as the stock price falls. The fragility of options is the reason why Akamai, and many companies like Akamai, faced an underwater options crisis. Stock, a more robust incentive instrument, has the important advantage of not being able to fall underwater. It is noteworthy that following their underwater options crisis, Akamai allowed their executives and employees to exchange their underwater options for (fewer) shares of *stock*.

The Value/Cost Ratio is Generally Higher for Stock

As stated earlier, the value of equity-based pay to recipients is generally less than the cost of the equity-based pay to companies. The ratio of value to cost is therefore a measure of the "inefficiency" of equity-based pay. Because options are riskier than stock—because options have greater downside risk—stock generally has a higher ratio of value to cost than options. Although the value/cost differential between stock and options varies according to circumstances (such as the diversification and risk-aversion of the executive and the volatility of the stock), estimates suggest the value-to-cost discount for stock is two to three times less than that of options under the most plausible assumptions.[55]

The fact that stock is a "more efficient" form of compensation helps offset the leverage "advantage" of options in terms of providing incentives. Indeed, because stock is more cost-effective, the evidence suggests that it is possible to generate stronger incentives per dollar of stock—get higher incentive bang per dollar of equity cost—than for options in many (but not all) cases.[56]

Stock is Less Complex and More Transparent than Options

The value of stock grants is much more transparent—to stockholders, employees and the press—than the value of options. Stock requires a fairly simple calculation in order to determine its (market) value: multiplying price times quantity. But the value of an at-the-money option package is far more complex and far less intuitive to recipients. In the earlier example of Steve Jobs' option grant, Jobs claimed that his option package was worth zero (since the options were underwater) when *Fortune* magazine put him on their cover claiming that his options package was the largest compensation package ever, at $842 million. An argument where the sides differ by nearly a billion dollars suggests a fair degree of complexity. (In fact, the package had a Black-Scholes value of about $170 million at the time the article was written.) The fact that the package could be said to be worth zero creates confusion about the issue, which facilitates abuse. Likewise, Dunlap was paid $75 million in options. Would the board have paid an equity package even close to that amount in stock? It seems unlikely. The cases where equity grants seem unjustifiably large by any reasonable analysis of the costs and benefits of the grants generally involve option, not stock, grants. If the hypothesis (admittedly hard to prove) that the complexity of option valuation contributes to pay abuse were to hold true, a change from option-based pay to stock-based pay would decrease the amount of abuse.

[55] See Hall and Murphy (2002).

[56] See Hall and Murphy (2002).

2. Abuse and Excess in Executive Pay

It is hard to read the newspaper or follow media reports without noticing stories about "excesses" in executive pay. Indeed, a significant focus of most executive pay stories is on "executive greed" and "out-of-control pay." As shown in **Figure C**, there has been a sharp rise in U.S. executive pay during the past two decades. This raises two issues. What caused the huge increase in executive pay? And is executive pay "excessive"? We discuss each in turn.

The Causes of the Executive Pay Explosion

Although it is hard to identify the causes of the executive pay explosion, several factors stand out. First, some of the increase is compensation for the increase in the riskiness of pay. As has been discussed, undiversified and risk-averse executives do not value stock and options at their market values, which suggests that **Figure C** overstates the increase in the *value* of the compensation to executives. However, even if the increase in pay is halved to account for the added risk—a reasonable estimate of the necessary adjustment[57]—executive pay has still increased dramatically over the period.

Second, much of the increase in pay has been in the form of stock options. As already discussed, the complexity of options may make the size of option pay less transparent, which facilitates abuse of the pay process. That is, boards that are overly friendly with their CEO and top executive team can more easily "overpay" the executives when the value of the pay package is less transparent.

Last, when boards do attempt to pin down the value of option packages, many believe that the process used has a built-in (upward) bias. In particular, the compensation committees of boards make heavy use of "pay surveys" done by executive compensation consultants. For example, when determining an executive's pay, the compensation consultants will use their data to show the range and distribution of pay for an executive in a comparable (in terms of size, industry, etc.) company. But since most boards feel that their executive is "above average," many boards insist in paying in the upper half of the distribution—for example, at the 60th or 75th percentile. Indeed, would it not be an insult to pay at the 35th percentile (even though 35% of the CEOs perform at that level or below)? Although it is hard to prove conclusively, the proposition that increased use of compensation surveys has contributed to the rise in executive pay is consistent with both the views of practitioners (including executives and compensation consultants themselves) and empirical evidence.[58]

In a related vein, it is noteworthy that the use of surveys was facilitated by rule changes in 1993, which required companies to more fully detail the pay of their top executives in company proxy statements. This expanded the already pervasive practice of using surveys to determine pay, since the collection of accurate and complete executive pay data was made easier. One of the hopes of the new rules was that greater disclosure would slow the increase in executive pay, as publicity regarding high pay would curb abuses. One possible reason for this outcome—which appears to be a dramatic *increase* in executive pay—is that once executive began to see more clearly how much their peers were making, they asked for more. And boards granted more. A (slightly cynical) interpretation of this is that the designers of the disclosure rules badly misestimated how the disclosure rules would affect executives. Instead of being embarrassed by publicity surrounding their excessive pay packages, many executives began to compete vigorously to make the most money. The increased disclosure rules introduced a new way for executives to compete with each other.

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[57] See the analysis of **Figure 3** in Hall and Murphy (2002).

[58] See Bizjak, Lemmon and Naveen (2000).

Although disclosure generally curbs excesses, it may contribute to excess when compensation is the issue.

Is Executive Pay Excessive?

Despite the large increase in executive pay over the past two decades, and fairly convincing evidence of excess in particular cases, it is hard to demonstrate that the overall level of executive pay is too high by looking at pay outcomes. The chief difficulty in making such a determination is that there is no obvious benchmark. What is "excessive"? Should executive pay be compared to employee pay? The pay of investment bankers? The pay of other "superstars"? The pay of European executives? What percentage of the upside (or downside) of shareholder value *should* executives receive?

While there is no obvious benchmark for analyzing the pay level outcomes, it is possible to shed light on this issue by looking at the pay determination process. That is, one measure of "appropriate executive pay" is compensation determined in *competitive labor markets* with *a sound process* overseen by an *independent board*. Let's analyze U.S. executive pay with regard to each of these three criteria.

Although competition clearly exists in executive labor markets, the degree of competitiveness for a given position varies widely by specific circumstances. While some executives compete in markets with a large number of fairly similar candidates, other executives—particularly at the CEO level—vie for positions in a pool of only a few candidates. Indeed, Khurana[59] describes how many boards become fixated on a particular "charismatic" CEO, effectively ruling out any candidate other than the "savior" who they believe will rescue the company. For example, when searching for a CEO, the Bank One board became quite enamored by Jamie Dimon, believing him to be far better than any of the other candidates—a "savior" of sorts, according to Khurana. In such situations, the CEO has great bargaining (market) power, and the CEO labor market is not highly competitive.

As described earlier, both anecdotal and empirical evidence suggests that the pay process may have a built-in bias. In particular, the widespread use of pay surveys contributes to large year-to-year increases in executive pay, a type of upward ratcheting. Finally, the degree of board independence varies greatly by company. While some companies have strong and independent boards, other boards are filled with close associates of the CEO, which can corrupt the pay process. Indeed, the evidence suggests that firms with weaker governance structures give greater pay to top executives than firms with stronger governance.[60] This suggests that stronger boards that check the power and influence of CEOs are also successful in curbing excessive compensation. In sum, although it is hard to demonstrate that pay is excessive based on pay outcomes, there are reasons to believe that the process that determines executive pay leads, at least in some cases, to abuse and excessive pay.

3. Accounting for Options

Standard at-the-money option grants do not create an expense to the P&L, either at the time of grant or at the time of exercise. A summary of option accounting rules are shown below in **Table E**. For a comparison, the accounting treatment of restricted stock is also summarized. The key point is that option grants do not create an accounting expense while stock grants do.

Table E The accounting treatment of stock options versus restricted stock

[59] Khurana (2002).

[60] Core, Holthausen, Larcker (1999).

Type of Equity Pay	Accounting Consequences
Stock Options	If the number of stock options and the exercise price are known at the time of grant, at-the-money options create no accounting expense on the income statement—either at the time of grant or at the time of exercise. More precisely, companies have the choice of expensing either: 1) The grant-date value of the options (based on option valuation models) 2) The intrinsic value of the options (e.g., the difference between the stock price and the exercise price). Not surprisingly, virtually all companies choose the second alternative, *which implies a zero expense for at-the-money option grants*. (Companies, however, are required to report the grant-date value of options—spread over the vesting period—in footnotes.)
Restricted Stock	The grant-date value of the stock grant is spread over the vesting period and charged against earnings (below EBITDA as a compensation expense). For example, a stock grant with a grant-date value of $4 million, which vests evenly over four years, creates a $1 million compensation expense each year for four years (regardless of how the stock performs in subsequent years).

Source: Created by casewriter.

Note: Restricted stock requires "fixed accounting" rules. "Variable accounting"—which requires that the values be marked to market over time—applies when option (or stock) grants do not meet certain requirements. For example, performance-based options (which vest subject to various performance hurdles) are subject to variable accounting since the number of options that would be received is not "known" in advance.

While companies do have to disclose option compensation in mandatory footnotes, it seems clear that a very high percentage of managers do not have faith that financial markets will be neutral to the way in which they account for options. In particular, most managers, like the Akamai managers, believe that investors will punish the stock price if they are forced to expense options. Thus, the accounting treatment of options strongly affects both their compensation policies, and the way that they choose to disclose that information to investors.

The accounting treatment of options is quite controversial and at the center of a heated debate, which has been re-ignited by the Enron debacle. Proponents of expensing options argue that options should be expensed since they are a genuine cost to shareholders. As Warren Buffet has stated, "If options are not compensation, what are they? If compensation is not an expense, what is it? If expenses don't go on the P&L, where do they go?"[61] Opponents of expensing options argue that options are hard to value, do not represent a cash expense, and—perhaps most importantly, especially in the high-tech sector—would cause companies to scale back option-based pay. This would, in turn, distort pay practices and undermine the use of an incentive device that drives entrepreneurship and innovation.[62] As venture capitalists John Doerr and Frederick Smith have argued: "Counting options as expense—"expensing" them—would actually distort and confuse that picture considerably. It could also prevent millions of workers from sharing in the success of their firms through employee ownership."[63]

The Uneven Playing Field

[61] Quinn, B., "Letters to the Editor: Stock Options: Heads We Win, Tails You Lose," *The Wall Street Journal,* April 19, 2002.

[62] Baumol, W.J. and B.G. Malkiel, "Stock Options Keep the Economy Afloat," *The Wall Street Journal*, April 4, 2002.

[63] Doerr, J.D. and F.W. Smith, "Leave Options Alone," *New York Times*, April 5, 2002.

Since options do represent a genuine cost to shareholders, not expensing them creates a distortion. There are many complexities regarding how and when to expense options,[64] but they are not "free." Thus, treating one type of costly compensation instrument as "free" while expensing others creates an uneven playing field and distorts pay practices. In particular, the current accounting treatment of options may distort the tradeoff between: 1) options and cash pay, and 2) options and other types of equity-based pay. We discuss each in turn.

Cash versus Broad-based Option Plans

The accounting treatment of options raises the issue of whether options are being overused for rank-and-file employees. Like Akamai,[65] Medicode,[66] Clear Lake[67] and General Electric[68] and many others, U.S. companies have increasingly pushed their option plans lower into the organization. For example, a 1999 study by William M. Mercer found that about 40% of all large companies granted options to at least half of their employees, more than doubling from the early 1990s. Moreover, about two-thirds of all options are held by non-executive employees.[69]

Although options have clearly helped firms attract and retain employees during the last decade,[70] the evidence that broad-based plans are effective in increasing firm performance is mixed.[71] While broad-based option plans do have the advantage of reminding employees that they have owners, and perhaps contributing to an "ownership culture," they are clearly a blunt incentive instrument. From the perspective of any one worker in a very large company, the connection between effort and stock price is fairly small and likely to be swamped by other factors. The fact that broad-based option plans are not a very targeted incentive device, combined with the notion that the value/cost efficiency of options can be quite low, suggests the possibility that options are being used too heavily in broad-based compensation plans, perhaps because of the distorted accounting treatment. Indeed, managers and other practitioners often claim that the accounting treatment of options is one of the key reasons why they rely on options so heavily. That is, many suggest that they would scale back their option plans if options had to be expensed.[72] If this is true, it seems likely that broad-based option plans are inefficiently substituting for cash-based and other forms of compensation.

Equity-pay Distortions

Earlier, it was noted that stock has many advantages relative to options. Yet, options are far more common than stock grants in the U.S., by a factor of approximately 15 to one. While there are many possible explanations, a key reason why many companies do not even consider stock grants is that the accounting treatment for stock is so unfavorable relative to that of options. It may well be that,

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[64] For example, options create a hard-to-measure, but more predictable, expected cost at grant, and an easier-to-measure, but highly variable, actual cost at realization. Note that the accounting treatment of restricted stock is based on expected cost and "fixed" at the time of grant.

[65] Hall, Lane, and Lim, "Akamai's Underwater Options (A)," HBS No. 902-069.

[66] Hall and Madigan, "Gerald Weiss," HBS No. 899-258.

[67] Hall, Musher, and Tufano, "Sara's Options," HBS No. 201-005.

[68] Welch (2001).

[69] Core and Guay (2001).

[70] With the important caveat that their ability to retain is quite fragile, as discussed.

[71] See Core and Guay (2001), Lambert, Larcker and Ittner (2001), and Kedia and Mozumdar (2002) for evidence.

[72] Hall, Lane, and Lim, "Akamai's Underwater Options (A)," HBS No. 902-069, and Doerr and Smith (2002).

absent the current accounting treatment of options, restricted stock would be a far more common form of compensation.

Indexed options represent another type of equity instrument with unfavorable accounting treatment but potentially desirable properties.[73] One criticism of equity-based pay is that executives (and employees) are rewarded for bull markets or favorable industry conditions, while being punished for market downturns that are "out of the manager's control." Indexed options—where the exercise price of the options varies with some market or industry index—has the obvious advantage of removing the "uncontrollable" effects of market movements from the executive's compensation.[74] Executives are then rewarded (punished) based on a less noisy measure of their performance, creating the possibility of a tighter pay-to-performance link.[75] Indeed, unless companies create some sort of indexing on the upside, they will probably find themselves with at least some amount of "asymmetric indexing" since companies feel keen pressure to do at least partial indexing on the downside. For example, when Akamai's stock price fell sharply with the NASDAQ decline, one of Akamai's compensation managers stated: "[Following the Akamai stock price decline], the correlation between pay and employee performance had broken down, and as a result employees were being unfairly penalized by the actions of the market."[76] Akamai felt pressure to grant more equity compensation as a discretionary response to the decline—a partial indexing on the downside—even though the company felt no employee pressure to "remove market movements" in a discretionary way on the upside, when the pay-to-performance relationship seemed to be working just fine.

Despite what appear to be significant advantages to indexed options, they are virtually non-existent in practice. For example, in a survey of 1,000 companies, only one company had an indexed option plan.[77] It may well be that indexed options are rarely used because they introduce difficult design problems. For example, what index should be used? Should the index be "beta" adjusted? Will executives and employees understand them? Do we always want to remove industry or market changes?[78] But, because of their accounting treatment, most companies do not even consider indexed options as a possibility.[79]

This analysis suggests that the uneven accounting treatment of compensation is creating a value-destroying bias in favor of options and against cash, stock and other forms of equity pay. Absent rules that level the accounting playing field between options and other forms of pay, it is difficult to know how large this bias is, or how much value, if any, it is destroying.

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[73] See Rappaport (1999), as one example.

[74] Indexed stock has the same desirable feature.

[75] For analysis of "controllability and incentives" and the closely related concept of "relative performance evaluation," see Antle and Demski (1988), Antle and Smith (1986), Holmstrom (1982), and Gibbons and Murphy (1990).

[76] Hall, Lane and Lim, "Akamai's Underwater Options (A)," HBS No. 902-069, page 10.

[77] Murphy (1999).

[78] For evidence and analysis regarding indexed options, see Meulbroek (2001a, 2001b) and Johnson and Tian (2000).

[79] Webscale in *Sara's Options* (Hall, Tufano and Musher, HBS No. 201-005) is a rare example.

Governance and Ownership Structure

We now turn to analysis and discussion of the role that directors and owners, operating within financial markets, play in incentive strategy. We begin by discussing the limits of financial incentives and the important role that boards play in monitoring managerial performance. We then discuss the role that the capital market—particularly the market for corporate control—plays in providing governance and incentives to managers (and boards). Finally, we analyze the way that ownership structure affects the incentives and performance of organizations. We begin with the limits of financial incentives.

The Limits of Financial Incentives

One of the main duties of boards is to design—or negotiate—the pay package for the company's top executives. But the provision of incentives—even very strong incentives—is often not sufficient to ensure that executives perform well. Active governance is also required. The Circon case demonstrates both the limits of incentives and the importance of strong governance. Circon's CEO, Richard Auhll, had very strong ownership incentives—he owned over 11% of the company, which is much larger than the typical fractional ownership (which averages about 1% with stock and options combined) for U.S. CEOs.[80] Although both Auhll and Circon were performing badly, Auhll strongly resisted a takeover attempt by Surgical that would have raised the value of his Circon shares by more than $10 million. But Auhll seemed less motivated by the value of his equity package than by maintaining his position as CEO. Said one director:

> Richard liked being CEO. It was who he was. He was in charge of a large organization in this small community. The company had a beautiful headquarters—clay tile roof, dark wood paneling, thick carpeting, beautiful woodwork, leaded glass. His office was gorgeous, on the corner of the building, with a private eating terrace. I think being CEO of Circon was prestigious from both a financial and social perspective.…I'm only speculating, but it would seem to me that the value of being CEO was greater than the value of the cash that Richard could have received on a sale.[81]

Although it is impossible to know one's motivations, other evidence in the case is consistent with the view that Auhll was strongly motivated by maintaining the benefits of being the CEO of a large company. According to this director, it was not that Auhll was unmotivated by financial incentives. Rather, the motivations from these incentives were dominated by other, stronger motivations.

While financial incentives are important, they in no way negate the need for effective board governance. Indeed, one of the main duties of an organization's board is to "monitor" the performance of the CEO and to remove the CEO if necessary. The board is the first line of defense against value-destroying behavior by executives.

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[80] See Baker and Hall (2001) for evidence and analysis on the limits of financial incentives and the need for such incentives to be combined with effective board governance.

[81] Hall, Rose, and Subramanian, "Circon (A)," HBS No. 801-403, page 13.

Weak Boards, Strong Managers[82]

In many cases, however, this line of defense is weak or ineffective. Many have argued that board ineffectiveness often stems from the fact that boards are too dominated by the CEO, who controls the information flow to the board and often plays a leading role in selecting the board.[83] For example, Lorsch and MacIver lament that:

> …The most obvious impediment to outside directors exercising their power is that the acknowledged and formal leader in 80% of U.S. boardrooms is the CEO, whose power is greater, primarily because of his knowledge of and expertise in company matters. Although directors feel they receive adequate information, their time, knowledge, and interpretive ability are no match for those of a full time and long-service CEO, and since the CEO determines what information directors receive, it's no exaggeration to say that, in most instances, directors understand the company through the CEO's eyes. In addition, the CEO controls the agenda, the meeting process, and, though less important on many boards, he or she still plays a key role in the selection of new outside directors.[84]

Indeed, many CEOs tend to "stack" the board with friends and allies who are unlikely to challenge the CEO's authority. This appears to be precisely what happened in the case of Circon. Although Circon underperformed for many years, the board failed to challenge Auhll or remove him, in large part because the board was comprised of handpicked, close associates of Auhll. And when Surgical attempted to purchase Circon, Auhll called in one of his close friends to join the board to help "defeat the Hun."[85] Because his board was stacked with cronies, Auhll insulated himself—at least for a while—from effective governance by "his" board.[86]

Capital Markets: the Second Line of Defense

Capital markets act as an important second line of defense against management failure.[87] That is, when the first line of defense—the board—fails to properly monitor management and provide effective governance, the takeover market—the market for corporate control—plays an important role. In particular, takeover groups or companies can take control of the company and restore effective governance and control. Absent this second line of defense, the only line of defense against an ineffectively governed and managed company is the product market. That is, if a firm destroys value over a sustained period of time, it will eventually become bankrupt. The three lines of defense against managerial failure are depicted in **Figure H**.

Figure H The Levels of Defense Against Value Destruction

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[82] See Roe (1994) for a political analysis explaining why the power of owners in the U.S. is often weak relative to that of managers.

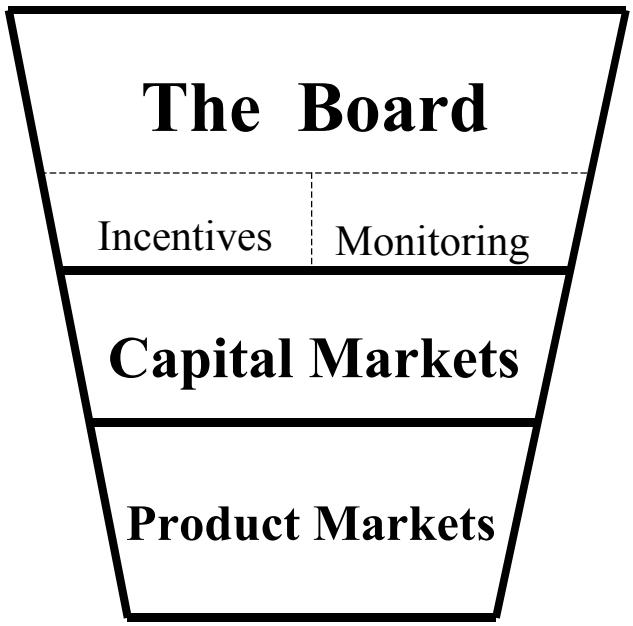
[83] See Lorsch and MacIver (1989).

[84] See Lorsch and MacIver (1989), 170-171.

[85] Hall, Rose, and Subramanian, "Circon (A)," HBS No. 801-403, page 9.

[86] Lorsch (2002) notes that ineffectively governed companies often have CEOs with undue influence on the board. In such cases, the CEO will often refer to the board as "my board."

[87] Jensen (1993).



Source: Adapted from Jensen (1993). See that article for a more detailed analysis.

The role of the market for corporate control is particularly important in weakly governed firms—particularly those where management is entrenched and unchallenged by the board, as Circon's management appears to have been. Absent this second line of defense, the value destruction by managers will only be checked by product markets, which represents a blunt way of defending against managerial and board failure. Indeed, the "discipline" of product markets—bankruptcy—is the perhaps the harshest and most disruptive of all market disciplines. In addition to the losses imposed on shareholders and creditors, workers and managers often lose their jobs and incomes, firm-specific human capital is destroyed, valuable supplier and customer relationships are lost, and communities are uprooted and sometimes destroyed.

Using this lens, the hostile takeover bid by Surgical for Circon can be interpreted as a natural result of the failure of the first line of defense against management failure—Circon's board of directors. Jensen and Ruback argue that the market for corporate control plays a key governance role by creating "an arena in which alternative management teams compete for the rights to manage corporate resources." They add that:

> When a breakdown of the internal control system [board of directors] imposes large costs on shareholders from incompetent, lazy or dishonest managers, takeover bids in the market for corporate control provide a vehicle for replacing the entire internal control system. Competing managers who perceive the opportunity to eliminate the inefficiencies can offer target shareholders a higher-valued alternative than current management while benefiting their own shareholders and themselves.[88]

Note that the takeover market plays a governance role even if there are few actual hostile takeovers. Although only a handful of companies are successfully taken over each year, the threat of

[88] See Jensen and Ruback (1983), 42-44.

takeovers always looms large for underperforming companies, and both boards and managers are generally well aware of the fact that poor company performance invites potential buyers. Because such actions can be very disruptive—and can involve the removal of both managers and directors—the threat of being taken over motivates boards and managers to focus on creating shareholder value. Indeed, if the governance role of the market for corporate control is strong enough, the mere threat of takeovers will provide sufficient motivation to managers and boards that actual hostile takeovers will be exceedingly rare. In that case, the market for corporate control would play an important, but largely silent, role as "the second line of defense" against managerial and board failure.

Although it is hard to prove causality, the academic evidence is consistent with the view that the market for corporate control has played a beneficial role by motivating managers and boards to perform well and create value for shareholders.[89] For example, there is evidence that CEO pay rises excessively when takeover defenses[90] are easier to adopt. Likewise, plant-level efficiency falls when takeover defenses become harder to implement.[91] Moreover, there is evidence that targets do not, on average, achieve on their own the same returns that they would have achieved had they accepted the hostile takeover bid and that strong takeover defenses are associated with poorer performance and shareholder returns.[92] Taken together, these findings suggest the opportunity for greater shareholder wealth creation through the promotion of a vibrant and active market for corporate control.

Some Disadvantages of an Active Takeover Market

Despite the important governance role they play, hostile takeovers can create major economic disruptions since they are often followed by dramatic changes in company management and strategic direction. Moreover, takeovers are sometimes followed by corporate restructurings, which affect communities and workers. As a result, takeovers have generated a fair amount of controversy in academia, business, the media, and society.

In addition to worries that corporate raiders will create economic dislocations for workers, critics of takeovers worry that the threat of takeovers may push managers to focus on short-term shareholder returns at the expense of long-term performance.[93] If a company is "on the sale block" all the time, managers may be pushed to please Wall Street by making myopic decisions. As demonstrated by Circon,[94] hostile takeover bids are disruptive. After the hostile bid was announced, Auhll found himself spending a lot of time trying to keep up the *esprit de corps*[95] of the sales force through incentives and other means. There is evidence that both the takeover defense and the disruption to the company from the bid were time consuming and draining on the company's resources.

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[89] See Jensen and Ruback (1983), Shleifer and Vishny (1997), and Gompers, Ishii and Metrick (2001), including the many references within for evidence.

[90] As with Circon, common anti-takeover devices include defenses such as "poison pills" (which make takeovers difficult since they dilute hostile bidders) and staggered boards (which make takeovers difficult because only a fraction—typically one-third—of the board can be replaced at a time).

[91] Borokhovich et al. (1997) and Bertrand and Mullainathan (1999 and 2000).

[92] Cotton and Zenner (1994) and Gompers, Ishii and Metrick (2001).

[93] Stein (1988) has a model consistent with this. But the evidence that takeovers cause managers to cut R&D and capital spending is not strongly supported by the data. For example, Meulbroek et al. (1990) and Johnson and Rao (1997) find that this type of spending decreases in response to anti-takeover device adoptions.

[94] Hall, Rose, and Subramanian, "Circon (A)," HBS No. 801-403, page 12.

[95] Hall, Rose, and Subramanian, "Circon (A)," HBS No. 801-403, page 7.

Another concern with takeovers is that bids may be coercive. Indeed, particularly in the earlier period of takeovers, some bidders effectively used complicated two-tier bidding strategies to virtually force shareholders to accept bids at low prices. Thus, critics of takeovers argue that companies need effective defenses such as poison pills and staggered boards to give companies an opportunity to fight off coercive bids and to use the defenses as leverage to get the highest possible price for the company's shareholders. Perhaps as a result of these takeover costs, the Delaware courts (which play a leading role in creating business law in the U.S.) have allowed companies to erect formidable barriers to takeovers. But in addition to protecting against the problems associated with takeovers, the laws have also provided managers with protection against the governance role of capital markets.

Organizational Form and Incentives

We now turn to analysis of the role that ownership structure plays in incentive strategy. As discussed at the beginning of this note, the LBO wave of the early 1980s helped spur the option explosion of the late 1980s and 1990s. The LBO associations represented a new organizational form, and despite some major failures, they were remarkably successful in creating value for the owners. Although some of the gains represented transfers from workers (whose pay was squeezed) to the shareholders, the evidence suggests that, on net, LBOs created real economic value and productivity gains.[96] Indeed, the LBO associations became sufficiently successful in the 1980s that some thought it would become a dominant organizational form in some sectors of the economy. For example, Jensen (1989) argued that the "publicly held corporation, the main engine of economic progress in the United States for a century has outlived its usefulness in many sectors of the economy and is being eclipsed" by LBO associations.[97] Although the public corporation withstood the challenge from the LBO organizational form, key insights from the LBO movement strongly influenced incentive and governance practices in corporate America, leaving an indelible mark.[98]

LBO Insights

We now describe some of those insights, and the ways in which they spilled over and became mainstream ideas and practices among U.S. corporations. First and perhaps most significant, the LBOs dramatically changed the incentives of managers by requiring executives to hold significant amounts of company stock and options. Because the LBO associations wanted the entire top management team to have a significant amount of their wealth at risk, they required top managers to buy significant equity stakes (by borrowing if necessary) while also making stock and options and significant part of managerial pay.

Second, because LBOs relied heavily on private and public debt to finance their operations, they generally had much higher debt obligations than publicly traded companies. These high interest payments forced LBO managers to recognize that capital was costly. The high interest payment removed much of the cash cushion—the free cash flow[99]—that executives in low-debt companies had. In LBO firms, the softer discipline of budgets was replaced with the stronger discipline of generating enough cash flow to avoid defaulting on interest payments. The K-III case provides an

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[96] See Holmstrom and Kaplan (2001), Shleifer and Vishny (1986).

[97] See Jensen (1989), 61-74.

[98] See Kaplan (1997).

[99] See Jensen (1986).

example of how high interest payments provide a high hurdle to managers, and how the high interest payments removed the cash flow available for managers to spend freely.[100] To a significant extent, meeting interest obligations became the budget. Third, the boards of LBO companies were smaller, more knowledgeable and more active in the business. LBO boards were dominated by individuals—typically members of the LBO firm—who had large equity stakes in the company.[101] The LBO associations greatly reduced the "separation between ownership and control."[102]

Organizational Form

Table F provides a summary of the incentives and disciplines provided by both LBOs and conglomerate organizational firms. LBO associations mainly targeted mature, underperforming companies with high and reasonably predictable cash flows, which they used to pay the high interest obligations. The incentives at the "headquarters" of conglomerates and LBO associations differed markedly. While the top managers of conglomerates received some stock and options, the headquarters of LBO companies consisted of the LBO partners who had significant equity stakes in each of the businesses they purchased. The partners not only invested in the businesses (through the partnership and with personal funds), they also received option-like incentives created by their "carry"—which generally equaled 20% of the upside. And as already discussed, the managers of LBO businesses had large equity stakes in the company, worked under a stronger, more active board, and had little excess cash flow because of the high debt obligations.

The table also includes a comparison of the venture capital (VC)-owned company. Note that the VC organizational form is similar to the LBO organizational form in terms of large managerial equity stakes combined with an active board of equity holders. The key difference is the "control lever." Whereas LBOs use debt to discipline the managers of mature, high cash-flow companies, VCs use staged capital—they give new rounds of financing only when the project continues to show sufficient promise—as their "control" device. High leverage, of course, would not work for VC-owned firms since VC-owned companies do not generally have high (or even positive) cash flow. Both LBO and VC organizational forms differ markedly from large conglomerates in terms of managerial incentives and corporate control.

The leveraged build-up, K-III, was an interesting hybrid of these two organizational firms[103]. Because K-III's strategy as a leveraged build-up was to continue to acquire companies, the owners of K-III (Kohlberg, Kravis and Roberts) were able to use both high debt and (a form of) staged capital as a control mechanism. Until they did their IPO, the managers of K-III could not continue their strategy of acquiring more companies without new rounds of capital, which the managers could not generate internally because of the high interest payments.

[100] Baker and Bamford, "K-III: A Leveraged Build-Up," HBS No. 295-067.

[101] See Holmstrom and Kaplan (2001) who describe these three LBO insights in greater detail.

[102] See Jensen and Fama (1994).

[103] Baker and Bamford, "K-III: A Leveraged Build-Up," HBS No. 295-067.

Table F Incentives and Control in Three Organizational Forms

	Conglomerate	LBO	VC
Business Type	(Too?) Big	Mature, predictable cash flows	High-risk, start-ups
Incentives at Headquarters	Standard stock, options and bonuses	High-powered equity. 1% of fund and 20% of override	Similar to LBO
Incentives at Operating Unit	Bonuses, etc. Some options	Stock and options are 15-20% of company. Illiquid: waiting for the IPO or sale.	Similar to LBO
Control Lever	Budgets, less active boards	Debt, active board	Staged capital, active board

Source: Created by casewriter. See Baker and Montgomery (1994) for a related comparison of LBO and conglomerate organizational forms.

U.S. Governance and Incentive Changes in the Past Four Decades

There have been dramatic changes in incentives and governance in the U.S. in the last four decades. **Table G** summarizes many of these key changes, highlighting important differences between the decades of the 1960 and 1970s and the decades of the 1980s and 1990s. It is noteworthy that all three of the major "insights" of the LBO movement have been adopted, albeit in varying degrees, by mainstream corporate America. Executives are paid in equity and most hold significant equity stakes in the companies they manage. Boards are now smaller, more activist and the vast majority of board members hold stock or options. While most companies are not nearly as highly levered as LBO-owned companies, bonuses are now regularly tied to Economic Value Added plans (or EVA-type plans)[104] that measure profits after the cost of capital has been deducted. Companies are generally leaner, and more focused on shareholder value creation. As a result of these changes, Kaplan has stated that "We are all Henry Kravis now,"[105] arguing that the LBO insights have led to profound changes in the governance structures and incentive policies of U.S. companies in the 1990s and today.

[104] For an analysis and description of Economic Value Added (EVA), see Stewart (1991), Young and O'Byrne (2001) and Ehbar (1998).

[105] Kaplan (1997).

Table G Corporate Governance and Incentives in the U.S. Over Four Decades

	1960s-1970s	1980s-1990s
Governance	Weak monitoring Management oriented	Activist institutional investors Shareholder oriented
Boards and Board Structure	Large Cash compensation	Smaller Equity-based compensation
Executive Pay Packages	Salary and bonus with little variation Executives rewarded for growth and EPS	Equity and options Ownership guidelines EVA High-powered bonus plans
Executive Turnover	Almost no involuntary turnover	Raiders and takeovers Activist boards and the firing of CEOs
Employment Relationship	Stable Long-term careers Many promotions	Unstable and insecure Fewer promotions Explicit pay-for-performance Profit sharing and stock options

Source: Created by casewriter.

The changes that have been described suggest a shift from managerial capitalism to shareholder capitalism in the previous two decades. Despite the abuses in executive pay, there is greater alignment of shareholder and managerial interests. Moreover, the incentives for managers have come in the form of both the "carrot"—stock and options—and the "stick"—most top managers feel the pressure of institutional investors and are more quickly dismissed for poor performance.[106] Moreover, corporate boards—the "first line of defense"—are more active and independent, and less likely to be dominated by entrenched CEOs. Jay Lorsch describes the stronger role that boards now play in governing companies: "Fortunately, much has changed in the past decade. Under pressure from shareholders, stock exchanges and the Delaware courts, most boards have undergone a significant change in attitude. Where once directors could be called mere ornaments, today most take their responsibilities very seriously…."[107]

Despite these changes, the collapse of Enron has pointed to significant cracks in corporate governance and the institutions designed to provide protection against market imperfections. The leaders of Enron appear to have engaged in opportunistic value destruction rather than value creation. This demonstrates the unintended consequences of high-powered equity incentives, while underscoring the importance of shoring up the infrastructure that supports shareholder capitalism. The Enron disaster is likely to lead to important responses—both public and private—in the disclosure rules, the accounting industry, board rules and dynamics, and the accounting consequences of option-based pay.

Conclusion

A significant theme of this note and this course is that organizations are embedded in markets, which both enhance and constrain the ability of managers and owners to design value-creating incentives systems. Although the rise of shareholder capitalism has elevated the role that markets play in organizations, it is important to remember that organizations are not markets. Indeed, organizations exist because many value-creating activities are best accomplished by individuals that choose to create value in teams—in organizations—rather than as individuals in markets. The managers of such organizations have the important task of using all the tools at their disposal—one of which is the design of reward systems—to motivate the members of the organization to produce things and ideas that are valued in markets, and therefore, by society.

Organizations exist to create value for society. Managers therefore have the privilege of managing organizations with a lofty purpose. Management is a job with both intrinsic and extrinsic rewards. Done passionately and well, management—and therefore managers—make the world a better place.

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[106] Khurana (2002), and Huson et al. (1998).

[107] Lorsch (2002).

Appendix A Summary of Option Terms

Exercise Price	• Also called strike price. • Price at which the employee can purchase the stock by "exercising" the option.
Fair Market Value Options	• Also called "at-the-money" options. • Options that have an exercise price equal to the company's stock price.
Discount Options	• Also called "in-the-money" options. • Options with an exercise price below the company's stock price.
Premium Options	• Also called "out-of-the-money" options or "underwater" options. • Options with an exercise price above the company's stock price. • Note that the term "underwater" usually refers to options granted "at the money" that have fallen "out of the money."
Vesting	• Options are generally restricted in that the option holder may not exercise until a certain time period—the vesting period—passes. • Options generally vest gradually. For example, a typical vesting schedule is 33% per year for three years. • Vested options are also called "exercisable options."
Cliff Vesting	• When all options vest at once (e.g., 100% of options "cliff vest" after two years).
Accelerated Vesting	• When the option vesting period is shortened or "accelerated."
Restricted stock	• Stock that is granted to executives or employees with a vesting schedule, which makes the stock "unvested" (or restricted) until the stock vests.
Maturity	• Also called expiration. • The amount of time—usually ten years—until an option expires. • Options may be exercised before maturity (subject to vesting requirements) but they may not be exercised after they expire.

Source: Created by casewriter.

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