

## REVERSE MONITORING: ON THE HIDDEN ROLE OF EMPLOYEE STOCK OWNERSHIP PLANS

Sharon Hannes<sup>\*</sup>

### *Abstract*

This paper develops a new understanding of equity-based compensation schemes, such as employee stock option plans. Current literature views such schemes as a measure aimed at motivating the recipient employees to work harder for the firm. Under such a view, this remuneration method either complements or substitutes other measures used to monitor the performance of the recipient employees. In contrast, this paper proposes that the recipient employee be viewed as the potential monitor of other employees and that stock options (or similar types of compensation) motivate her to fulfill this task. This view has many applications and can shed light on persistent puzzles, including why there is sweeping use of stock ownership plans by many new economy firms. No junior employee at Microsoft or Intel can improve the value of her heavyweight employer to such a degree that it will make it worthwhile for her to work harder once stock options are offered. Nevertheless, given the sensitivity of the "knowledge industry" to leakage of its intellectual property, all employees can add much to the company's value by standing on guard against such leakage. If technology is both a vulnerable and critical asset for the organization, option recipients will be alert in protecting against infringement. Since not much effort needs to be exerted to monitor their peers and supervisors to prevent this significant harm, incentive compensations can easily motivate employees to perform their monitoring task. Many other applications of this new view that cannot be explained by the current literature are discussed in the paper.

### I. Introduction

The literature explains that broad-based employee stock option plans, as well as other types of stock-based compensation, are designed primarily to motivate employees to exert greater effort. This paper questions this traditional and widely accepted view and supplements it with another justification for such a type of compensation. Stock options "privatize" the firm's monitoring task into the hands of its employees. Every employee who is equipped with stock-based compensation is motivated to monitor other employees, including the employee's supervisor, to make sure that her peers do not harm the firm. This view of options turns the traditional understanding on its head. Instead of emphasizing the role of options in alleviating the burden of monitoring recipient

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employees, the proposed view, which I term “reverse monitoring,” underlines the role of those employees as monitors of other employees.<sup>1</sup>

This view may shed light on several puzzles that the traditional literature does not answer in a satisfactory manner.<sup>2</sup> For one, it may explain why many “new economy” firms grant across-the-board stock-based compensation.<sup>3</sup> The traditional account explains that efforts of employees in this industry sector are especially valuable but hardly measurable. However, it is doubtful whether the contribution of the ordinary engineer at Microsoft has a meaningful enough effect on the value of Microsoft stock for this argument to hold. In contrast, the reverse monitoring argument explains that Microsoft stock may, indeed, suffer salient damages if its employees tamper or transfer its highly valuable source code or other proprietary intellectual property. Stock-based compensation provides a powerful incentive for the recipients to monitor their fellow employees against such behavior. And these employees have the ability to fulfill this monitoring task much more efficiently than any other, outside agent. In some cases, this view justifies granting options to many employees, not only to the highly creative ones or those at the top of the pyramid. From this perspective, Intel’s longstanding policy of granting options to *all* employees is understandable and far from naive.<sup>4</sup> Simply put, in many high-tech firms, option grants are one measure for preventing intellectual property leakage or sabotage among many other efforts that these firms make to preserve this precious and vulnerable asset.

One recent study clearly presents the challenge that broad-based employee option plans pose for the traditional literature:

“However, many firms also offer firm-wide stock options and profit sharing plans that provide even less incentive than executive plans – after all, most workers can expect to reap a very minimal amount of personal gain from their contribution to firm value or profits. Given the free-rider problems associated with group compensation plans, *their prevalence is puzzling.*”<sup>5</sup>

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<sup>1</sup> In agency theory terms, and as shall be further discussed, this means that the costs associated with option grants to employees are monitoring costs and not bonding costs. See Michael C. Jensen & William H. Meckling, *The Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structures*, 4 J. FIN. ECON. 305-60 (1976).

<sup>2</sup> Elsewhere I discussed the outcomes of incentive pay in a different context. See Sharon Hanes, *A Demand-Side Theory of Antitakeover Defenses*, 35 J. Legal Stud. 475, 494-95 (2006) (discussing the role of executive pay in the context of takeovers).

<sup>3</sup> A “new economy” firm is usually defined as a firm from one of the following market sectors: computers, semiconductors, telephone equipment, or internet-related industries. See, e.g., Christopher D. Ittner, Richard A. Lambert & David F. Larcker, *The Structure and Performance of Equity Grants to Employees of New Economy Firms*, 34 J. ACC. & ECON. 89 (2003).

<sup>4</sup> See Intel’s stated policy available at <http://www.intel.com/jobs/workplace/benefits.htm> (“At Intel, our employees own a stake in the company. Through Intel’s Stock Option Plan, full- and part-time employees may be eligible to receive options based on their past performance and anticipated future contributions. Additionally, all employees are encouraged to enroll in the Stock Participation Plan, a program that offers employees an opportunity to purchase Intel stock at a price lower than the fair market value through convenient payroll deductions.”).

<sup>5</sup> Paul Oyer, *Why Do Firms Use Incentives That Have No Incentive Effects?* (Working Paper 2000) available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=361600](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=361600).

This description accurately reiterates and questions the commonly-held rationale for option grants. Although every employee with stock options is expected to exert more effort at work due to the options, why would anyone cause herself discomfort based on the remote possibility that her modified behavior will substantially alter the value of the option grant? The picture changes dramatically, however, if we instead understand the recipient employee as a monitor and not as a target of monitoring by means of the option. No substantial effort is required of employees to monitor their peers, as the working interactions allow them to easily observe their fellow employees. In contrast to the literature's paradigm of options overcoming recipients' natural discomfort from exerting greater effort, peer monitoring is almost costless and requires only awareness. It is therefore hardly surprising that most new economy firms arrange the working environment in an open-space pattern, as open spaces and option grants are complementary measures. Even if the employees handle especially valuable and sensitive information, the employer has no need for sophisticated surveillance techniques, since the employees, armed with options, are always watching their peers on the firm's behalf. It is hard to imagine anyone in a better position to fulfill this mission, and since their explicit duties do not include this task, it is wise to give them an incentive to do so in the form of options. Ironically, options cause employees in these firms to work harder, not because (as commonly thought) they consider themselves owners but because their peers are watching and care.

Moreover, in many new economy firms, almost any employee can cause considerable damage to the firm by way of breach of trust or otherwise tampering with the firm's intellectual property. This harmful potential is usually much more significant than any beneficial potential that one employee bears, as a rotten-minded employee can destroy the achievements of many others. This reality underscores the usefulness of options as a monitoring device. If an ill-minded or untrustworthy employee wishes to harm the firm, it is unlikely that her option grant will cause her to reconsider. However, the value of the option grants of her peer employees could drop substantially if she were, in fact, to carry out such a scheme, which causes her peers to be alert to the possibility of such an occurrence. When an employee becomes cause for concern, other employees (including those usually supervised by her) will quickly report her to eliminate the danger she poses. Altogether, the proposed view of option grants tilts both sides of the classic equation. On the one hand, employees are required to exert almost no effort in monitoring their peers, especially if the working environment is arranged in a transparent manner. On the other hand, peer monitoring can prevent much damage to and leakage of valuable information to competitors. Thus, a medium-sized option package that cannot motivate an employee to work harder can easily motivate her to perform the task of monitoring. As we shall see below, recent empirical studies that refute the classic view of option grants as an incentive device correspond perfectly with the argument presented in this paper.

A second application of this proposed approach explains why stock-based compensation is justified for key officers in concentrated ownership enterprises. Again, it is doubtful that these grants make any real contribution to motivating these officers to exert greater effort. After all, in a concentrated ownership firm, in contrast to a diffused ownership firm, the entity has a controller who can reward or sanction the officers directly, without need for the crude measure of options. The reverse monitoring theory

suggests an alternative explanation. Equipped with options, key officers guard against expropriation by the controlling shareholder of the entity, although they must do so in a covert manner so as to prevent the controller's revenge. Concentrated ownership firms with this type of compensation structure should be able to more easily persuade institutional investors that the controller will not pursue her own agenda rather than that shared by all shareholders. This explanation sheds light on why equity-based compensation is on the rise outside U.S. boundaries, where firm ownership is commonly concentrated (and self-dealing by the controller is a major issue), as well as in U.S. firms with controllers.

Finally, the discussion is relevant to the matter of gatekeepers. Equity-based compensation for gatekeepers is an attractive measure from the reverse monitoring perspective. However, such a measure can be tricky. While, on the one hand, it will motivate the gatekeeper to monitor the action of management in some aspects (such as with regard to self-dealing transactions), it may, on the other hand, also exacerbate other problems (such as accounting fraud). Some checks and balances are, therefore, necessary, if equity-based compensation is to be an effective mechanism for rewarding gatekeepers.<sup>6</sup>

The paper progresses as follows. Section II starts out by discussing the proliferation of executive and broad-based stock option plans (and other equity-based compensation) in the U.S. Thereafter, the Section briefly discusses the main criticism against the current trends in executive compensation and shows that it does not hold for broad-based stock option plans. Section III discusses the non-incentive based justifications given in the literature for this trend and the reasons why these explanations are questionable. Section IV presents the idea of reverse monitoring and how this approach can shed light on recent empirical findings that challenge the classic incentive-based view of equity-based compensation. Section III expands the discussion to consider equity-based compensation to executives in public firms with a controlling shareholder, and to gatekeepers. Equity-based compensation in partially privatized firms and in pre-IPO ventures are also briefly discussed. Section IV wraps up the discussion.

## II. THE PROLIFERATION OF EXECUTIVE AND BROAD-BASED ESOPs IN THE U.S.

Most of the literature on employee stock ownership plans ("ESOPs") centers around executive compensation.<sup>7</sup> Given the intriguing facts involved in these plans, this is hardly surprising. Much has changed since Jensen and Murphy first made their famous claim in 1990, that American CEOs are "paid like bureaucrats."<sup>8</sup> Between the years 1980

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<sup>6</sup> For a recent discussion of rewards to gatekeepers, see Assaf Hamdani & Reinier Kraakman, *Rewarding Outside Director* (2006) (unpublished manuscript, on file with author).

<sup>7</sup> KEVIN F. HALLOCK & KEVIN J. MURPHY, *THE ECONOMICS OF EXECUTIVE COMPENSATION* (K. Hallock & K. Murphy, eds., Edward Elgar Publishing, 1999) (reporting a surge in the number of papers that discuss executive compensation in the 1990s).

<sup>8</sup> Michael C. Jensen & Kevin J. Murphy, *CEO Incentives — It's Not How Much You Pay, But How*, 68 HARV. BUS. REV. 138 (1990) (reviewing U.S. executive compensation in the period of 1969 to 1983).

and 1994, the average executive compensation rose by 209%,<sup>9</sup> and between the years 1992 and 1998, it almost tripled, with average compensation to the top five executive in the largest 500 U.S. companies climbing from \$2,335,000 to \$6,549,000.<sup>10</sup> The increase in average CEO total compensation was even more stunning, from \$3,500,000 in 1992 to \$14,700,000 in 2000.<sup>11</sup>

This dramatic rise in executive compensation was due at least in part to the striking increase in option grants. While, in 1985, the value of options granted was only 8% of the average CEO total compensation,<sup>12</sup> in the period of 1992 to 1998, the options value rose from 15% to 40% and,<sup>13</sup> in 2000, peaked at 51% of the average total compensation.<sup>14</sup> Moreover, while, in 1980, only 57% of the top executives owned any options in their firms, this number had risen to 87% by 1994;<sup>15</sup> in the year 1999 alone, 94% of the largest companies granted options to their executives.<sup>16</sup>

However, and notwithstanding the high-profile discussion on managerial pay, equity-based compensation is certainly not a phenomenon related exclusively to top executives. Although top executives do receive much of this type of compensation, the lion's share goes to mid-level employees. In a random sample of 1000 firms that filed proxy statements with the SEC in 1999, no less than 48.9% had adopted broad-based stock option plans in 1998.<sup>17</sup> Among those firms making broad use of stock-based

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<sup>9</sup> Brian J. Hall & Jeffrey B. Liebman, *Are CEOs Really Paid Like Bureaucrats?*, 113 Q.J. ECON. 653, 655 (1998) (reviewing compensation practices of the 400 largest public firms and concluding that executives are no longer paid like bureaucrats and that pay is linked to performance).

<sup>10</sup> Kevin J. Murphy, *Explaining Executive Compensation: Managerial Power versus the Perceived Cost of Stock Options*, 69 U. Chi. L. Rev. 847, 848 (2002) (discussing growth in executive compensation); Susan J. Stabile, *One For A, Two For B, and Four Hundred For C: The Widening Gap in Pay Between Executives and Rank and File Employees*, 36 U. Mich. J.L. Reform 115 (2003) (discussing and criticizing growth in executive compensation); Tod Perry & Marc Zenner, *CEO Compensation in the 1990s: Shareholder Alignment or Shareholder Expropriation?*, 35 Wake Forest L. Rev. 123, 124 (2000) (same).

<sup>11</sup> Brian J. Hall & Kevin J. Murphy, *The Trouble with Stock Options*, 17 J. Econ. Persp. 49 (2003) (reporting and discussing executive option grants).

<sup>12</sup> See Linda J. Barris, *The Overcompensation Problem: A Collective Approach to Controlling Executive Pay*, 68 IND. L.J. 59, 64 (1992) (an empirical study among 800 public firms).

<sup>13</sup> See Brian J. Hall & Kevin J. Murphy, *Optimal Exercise Prices for Executive Stock Options*, 90 AM. ECON. REV. 209 (2002); Perry & Zenner, *supra* note 10, at 131; Kevin J. Murphy, *Politics, Economics, and Executive Compensation*, 63 U. CIN. L. REV. 713, 719 (1995) (an extensive review of executive compensation practices among 1000 large public firms—for example, options accounted for 23% of executive total compensation, averaging \$1,300,000 per each of the top-five paid executives).

<sup>14</sup> See Murphy, *supra* note 10, at 848.

<sup>15</sup> See Hall & Liebman, *supra* note 9, at 663.

<sup>16</sup> See Brian J. Hall & Kevin J. Murphy, *Stock Options for Undiversified Executives*, 33 J. ACCT. ECON. 3, 4 (2002) (reviewing executive compensation in the largest 500 U.S. firms); see also Marcel Kahan, *The Limited Significance of Norms for Corporate Governance*, 149 U. PA. L. REV. 1869, 1888 (2000) (reporting that, in 1996, in a sample of 250 large public firms, 90% of the companies used stock option compensation).

<sup>17</sup> An ESOP was defined for the purposes of the study as broad-based if it grants all employees, excluding the 10% most highly paid employees, at least 1% of the firm's outstanding share capital in one year. Since detailed information in securities disclosure is available only for the five highest-paid workers, the above calculation entails certain assumptions. See Paul Oyer & Scott Schaefer, *Why Do Some Firms Give Stock Options to All Employees? An Empirical Examination of Alternative Theories* 7 (NBER Working Paper 2004) available at <http://www.nber.org/paper/w10222> (empirical investigation of broad-based ESOPs).

compensation, beyond the executive tier, the new economy firms from industries based on knowledge are highly over-represented. Whereas these firms represent only 16.2% of the entire sample in number, they account for 26.2% of the sample firms with broad-based plans and only 6.6% of firms that grant options mainly to their executives. These significant findings – that many firms issue options to many employees and that new economy firms do so more than other firms – present a challenge to the existing literature, but are easily reconcilable with the reverse monitoring argument. Before we progress to this explanation and the fact that additional empirical findings seem to corroborate it, however, a few words are in order about current criticism of executive pay and why it bears little relevance to our discussion.

In a recent book, which has received much attention in the media and academia, Bebchuk and Fried argue that executive compensation in the U.S. is structured for the benefit of managers and is inimical to shareholders.<sup>18</sup> If this criticism is justified and it extends to broad-based ESOPs as well, then this paper’s quest to uncover the benefits of ESOPs to employers may well be moot. However, upon brief scrutiny, this line of criticism is revealed to be, by and large, irrelevant to our discussion. Bebchuk and Fried argue, in short, that top executives, especially CEOs, have considerable power to intervene in setting compensation and therefore lead to less-than-optimal contracting results. The result is too much pay with too low sensitivity to firm performance, accompanied by many inefficient arrangements that provide unnoticed “stealth” compensation to managers. The use of options and similar compensation arrangements, goes the argument, does not really serve the purpose of motivating managers, but, rather, is an excuse to pay more.

On its face, this line of criticism simply does not apply to broad-based ESOPs. Mid-level employees have no special power in setting their own compensation, nor would the firm have any incentive to compensate inefficiently. If pay structure for these employees is inefficient, both the firm and employees can do better by improving that pay structure. And since option grants that fluctuate in value impose considerable risk on the recipient employees, there must be compelling justification to use them; otherwise firms could use conventional pay, which would allow them to both pay less and impose less risk on the workers, leaving both parties better off. Moreover, accepting Bebchuk and Fried’s criticism on the current structure of executive pay does not entail the conclusion that equity-based compensation is an undesirable measure. In fact, this measure, when structured correctly, is highly recommended by the authors:

*“The managerial power approach does not question the desirability of using options to compensate executives. Options provide managers with greater incentive to create shareholder value, and thus the use of options in executive compensation might well be beneficial to shareholders. Rather, the managerial*

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<sup>18</sup> LUCIAN A. BEBCHUK & JESSE M. FRIED, *PAY WITHOUT PERFORMANCE: THE UNFULFILLED PROMISE OF EXECUTIVE COMPENSATION* (Harvard University Press, 2004) (criticizing manager pay practices and offering reform proposal). *But cf.* John E. Core, Wayne R. Guay & Randell S. Thomas, *Is U.S. CEO Compensation Inefficient Pay Without Performance?* (Working Paper 2004) *available at* [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=648648](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=648648) (arguing against Bebchuk and Fried’s major points and proposals).

power approach focuses on whether the magnitude and design of a particular option-based pay package are close to that which would arise under optimal contracting.”<sup>19</sup>

As will be shown below, this means that the reverse monitoring approach advanced by this paper is useful in understanding the desirability of options for managerial pay as well. First, in a diffused ownership setting, my argument backs the conventional one – i.e., options motivate the recipient manager who could not be easily monitored otherwise. Second, in a concentrated ownership setting, where top managers are quite easily monitored by the controlling shareholder, under my approach, the primary effect of options is to induce top executives to monitor the firm’s controller as well as their peers.

### III. NON-INCENTIVE-BASED JUSTIFICATIONS FOR THE ADOPTION OF ESOPs ON A BROAD BASIS

We saw above that the criticism directed at executive option plans is not applicable to option plans for ordinary employees. Moreover, the empirical literature on the outcomes of such broad-based ESOP adoption is highly favorable to the shareholders of the adopting firms. Firms that broadly disperse stock options to employees enjoy better economic performance, in different measures, than their non-granting peer firms.<sup>20</sup> Further analysis shows that option grants bear a statistically significant positive influence on the market value of option-adopting firms.<sup>21</sup> What benefits, then, do broad-based ESOPs produce to counter the costs of the expensive measure? While the most common answer is that ESOPs overcome employees’ free-riding and give them incentive to exert additional efforts at work, this paper argues that this incentive is not likely to emerge in practice and that the answer to the question therefore lies in another type of incentive that stock option generate. But before discussing the flaws of the common incentive-based argument and my proposed alternative, this section of the paper will consider other, non-incentive-based justifications for stock option plans. I briefly present each justification and discuss certain reservations that can be raised with regard to these justifications, although this paper’s argument can in fact complement each of the justifications.

#### 1. RETENTION

A commonly echoed argument in the literature is that options are “golden handcuffs,” assisting firms to preserve their workforce and prevent attrition. Options undoubtedly do have this quality, as they usually vest gradually, normally along a four-

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<sup>19</sup> Lucian Arye Bebchuk, Jesse M. Fried & David I. Walker, *Managerial Power and Rent Extraction in the Design of Executive Compensation*, 69 U. Chi. L. Rev. 751, 792 (2002).

<sup>20</sup> See, e.g., J. Sesil, M. Kranmova, D. Kruse & J. Blasi, *Broad-Based Employee Stock Options in U.S. New Economy Firms*, 40 British J. Industrial Relations 273 (2002) (measuring differences in financial outcomes for firms with and without broad-based ESOPs); Ittner et al., *supra* note 3 (measuring success of ESOPs against firm’s stated objective).

<sup>21</sup> Timothy B. Bell, Wayne.R. Landsman, Bruce.L. Miller & Shu Yeh, *The Valuation Implications of Employee Stock Option: Accounting for Profitable Computer Software Firms*, 77 Accounting Rev. 971 (2002).

year period, which makes it worthwhile for workers to maintain their positions at the firm. However, this argument per se does not explain the superiority of options over other forms of long-term compensation. Option grants involve risks, including factors beyond the firm's boundaries and control; thus, if retention is the firm's only concern, a fixed long-term bonus plan (or one that is tied to individual employee performance) seems more suitable. The prevalent retention argument, therefore, does not explain why option grants, as a specific type of deferred compensation, are the best suited tool for employee retention.

However, there is a more sophisticated version of the employee retention argument. Stock prices in an industry and its labor market conditions are often correlated. When stock prices soar in an industry, employers are typically short of workers, and vice versa. Long-term option grants automatically index employees' deferred compensation value to their outside employment opportunities. Costly negotiations and adjustments of contracts are therefore saved by the fact that the inflated value of the option grant prevents attrition when conditions for employees improve in the market. Interestingly, this sophisticated version of the employee retention justification has some empirical backing. The authors of one study showed that fluctuations in salaries in certain markets are accompanied by correlating fluctuations in the value of mid-sized option grants in the same markets, thus saving the burden and cost of adjusting wages.<sup>22</sup>

While I have no doubt that a compensation package containing options assists in employee retention, I think that to argue that this is the objective of granting options is to miss the point. Although the value of options is influenced by macro-economics and industry-wide factors, a distinct feature of options is that they first and foremost reflect the performance of the issuing firm. If the main concern of employers were indexing compensation to outside employment opportunities, salaries could be indexed to industry-level indicators. Therefore, for a full picture of the rationale for the extensive use of options in the market, a theory directly connecting between the employee and the issuer-employer is necessary.

## 2. FINANCING CONSTRAINTS

Another common explanation for using ESOPs extensively examined in the literature maintains that cash-constrained firms offer stock as compensation in lieu of raising funds in a more traditional fashion. While this argument is intuitively very compelling, its empirical backing is only partial. One study, seeking empirical support for this argument, looked for a link between ESOP usage and a few different measures of financial constraint. The study revealed that firms that grant options have more accumulated losses, but it could not find any correlation between option grants and other measures, such as dividend payouts.<sup>23</sup> Other studies showed findings that were even less favorable to the financial constraints explanation. One study looked for a link between ESOP usage and cash-flows per employee or available-cash-per-employee as measures of

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<sup>22</sup> Oyer & Schaefer, *supra* note 17, at 28-32.

<sup>23</sup> Simi Kedia & Abon Mozumdar, Performance Impact of Employee Stock Options (Working Paper 2002) available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=304188](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=304188).



financial constraints in new economy firms and concluded that there is “no evidence that cash constrained new economy firms make greater use of equity-based compensation.”<sup>24</sup> This finding is especially problematic for the financial constraints argument since the intuition is that many new economy start-ups issue ESOPs in lieu of paying salaries because they are cash constrained. Finally, in relation to non-executive grants, which are especially interesting for the reverse monitoring argument, one study found that they are positively related to high cash levels and unrelated to several factors of cash constraints and financial distress. This study concluded that “these findings contradict the notion that option compensation is used to alleviate financing constraints.”<sup>25</sup>

But putting aside the empirical findings, it is common knowledge that heavyweight new economy firms such as Intel, Microsoft, IBM, Dell, and many others use stock-based compensation extensively, to say the least. Therefore, even if there is much appeal and sense to the financial constraints justification, it surely does not tell the entire story of employee stock options.

### 3. SORTING

The next explanation for broad-based employee stock ownership plans is the sorting argument, namely, that firms are able to sort out the most suitable employees by means of incentive pay packages. Traditional sorting arguments suggest that firms offer incentive packages to attract the employees who can best contribute to firm value.<sup>26</sup> In its simple form, however, this type of argument assumes that a single able employee can improve the firm market value to such a degree that it is even worthwhile to design a compensation scheme that involves much uncertainty from the point of view of the employee (and therefore expensive to the employer who has to compensate the employee for the risk).<sup>27</sup> Since the validity of this assumption is questionable, as I will elaborate in my discussion of incentives considerations, researchers have formulated and tested more nuanced sorting arguments.<sup>28</sup>

Under the more sophisticated models of sorting, employees are heterogeneous in their beliefs regarding the firm's prospects. Hence, the corporation will attract the most optimistic employees by offering stock compensation. The firm can benefit from this practice because it enables the firm to reduce its overall compensation expenses. If "optimistic" employees value the firm's stock options above the market price, then firms may pay less by offering them stock, as opposed to traditional pay packages. This argument does not entail the assumption that each sorted employee believes that she alone can significantly drive up the market value of the firm's shares. Rather, it is necessary only for some employees to believe in the specific prospects of the employer

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<sup>24</sup> Ittner et al., *supra* note 3, at 108.

<sup>25</sup> Nittai Bergman & Dirk Jenter, Employee Sentiment and Stock Option Compensation (Working Paper 2005) available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=587426](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=587426).

<sup>26</sup> See, Edward P. Lazear, "Output-Based Pay: Incentives, Retention or Sorting?" (April 2003). IZA Discussion Paper No. 761. Available at <http://ssrn.com/abstract=403900> (a model in which firms cannot distinguish between the types of work applicants and therefore attract employees who can contribute the most by tying the offered pay to the employee's performance).

<sup>27</sup> The risk stems from the volatility of the share prices on the stock exchange, which for a risk averse employee can easily outweigh any sorting benefit asserted under the traditional argument discussed in the text.

<sup>28</sup> See, Oyer & Schaefer, *supra* note 17 at 11, 24.

beyond the general belief prevalent in the market place. Moreover, if we make the additional assumption that the most optimistic employees are also the most suitable employees, given their believe in the future of the firm, then additional benefits to the firm ensue from hiring able employees. Thus, stock-based compensation, under this sorting argument, enables firms to attract employees who are highly enthusiastic about the firm's future and by offering them a pay package that falls below its cash equivalent on the stock market.

The researchers who formulated this argument tested its plausibility against current statistics. The main problem with this argument is the heavy risk costs associated with stock-based compensation. Risk-averse employees discount the value of their pay package due to the volatility of share prices on the stock exchange, which may outweigh the benefits mentioned above. After assessing the possible effects and running a computerized simulation, the authors tried to match the sorting argument with the existing data and concluded as follows:

"Our calculations here indicate that, holding the employee's risk aversion constant, firms with lower stock volatility can more efficiently use stock options. Firms in the NCEO *sample* tend, however, to have very high volatilities. The fact that high-volatility firms use options is consistent with sorting only if these firms hire a selection of very risk tolerant employees, if the firm can locate extremely optimistic employees, or if optimistic employees are significantly more productive."<sup>29</sup>

As expressed in the above passage, the finding that the most volatile firms are those that use stock-based compensation does leave some room for the sorting hypothesis but it also requires adding highly restrictive assumptions. At the very least, these qualification raise doubts whether firms can afford to design compensation schemes that are effective only for highly-optimistic and risk-tolerant employees. Moreover, the authors did not explain why less volatile firms that could utilize the same compensation scheme efficiently do not use it as often. Most importantly, and on the theoretical level, attracting optimistic employees by granting them overvalued shares seems, to me, an adverse practice. Indeed, although, at the time of the options grant, some compensation costs are minimized, when stock options vest and the employees eventually reveal their over-optimism, the firm has to cope with its highly disappointed employees. Since a firm must maintain a good relationship with its workforce over time, I doubt the wisdom of attracting employees by taking advantage of their optimism. Hence, even if firms could under-pay by using subjectively overvalued equity, it does not follow that this practice is desirable, nor is it proven that the objective value of stock or an options grant to employees in practice falls short of its cash equivalent. Thus, if stock ownership plans sort optimistic employees and thus economize on some compensation costs, it seems to me that this is a by-product of these remuneration measures and not their main aim or consequences.

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<sup>29</sup> *Id.*, at 27.

#### 4. ACCOUNTING CONSIDERATIONS

Until recently, employee stock option plans received favorable accounting treatment. Firms could generally elect not to recognize pay in stock options as an expense, although the value of the stock option grant had to be disclosed to the public.<sup>30</sup> Thus, firms were able to boost their profits by using options instead of plain vanilla salaries. However, if the stock market considers the entire disclosure and not only the financial statements, share prices should not be affected by the artificially inflated profits. Interestingly, there are some empirical findings that "call into question whether investors assess correctly the effect of [employee stock options] on ... firm value,"<sup>31</sup> and at the very least, it is unclear precisely how stock prices incorporate option grant information.<sup>32</sup> Hence, if investors can be tricked to some extent by evading recognition of the expense of stock options, the accounting treatment may be a cause of the expansion in stock-option pay. Moreover, this favorable accounting treatment might be a contributing factor in the stock-option trend even if managers naively believe that the market can be fooled or if their own pay is linked to the firm's accounting performance and not to the market value of the shares.

However, it is doubtful whether favorable accounting treatment can explain the prevalence of stock-based compensation. Given that employees tend to be risk averse, compensating them with stock-based pay whose value depends on the uncertain movement of the market is a very expensive measure.<sup>33</sup> If the entire maneuver is aimed at artificially inflating profits and camouflaging expenses, then at least firms with solid corporate governance are not expected to pay more in options to compensate for the risk involved from the employees' perspective. However, empirical research reveals that corporate governance is not weaker among the types of firms that tend to issue more options relative to the type of firm that uses option-based pay to a lesser extent.<sup>34</sup> This finding calls into doubt the favorable accounting treatment argument. Along the same lines, many firms that use broad-based option plans, such as Microsoft and Oracle, are

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<sup>30</sup> See Hall & Murphy, *supra* note 11, at 53 ("[T]here is usually no accounting expense recorded for options either at time of grant or exercise.").

<sup>31</sup> Timothy B. Bell, Wayne R. Landsman, Bruce L. Miller & Shu Yeh, *The Valuation Implication of Employee Stock-Option Accounting for Profitable Computer Software Firms*, 77 *Accounting Rev.* 971-996 (2002).

<sup>32</sup> See generally David Aboody, *Market Valuation of Employee Stock Options*, 22 *J. Accounting & Econ.* 357 (1996) (empirical assessment of options' value disclosure on market prices); David Aboody, Mary E. Barth & Ron Kasznik, *SFAS 123 Stock-Based Compensation Expense and Equity Market Values*, Research Paper 1694, Graduate School of Business, Stanford University (2001) (same); Mark R. Huson, Thomas W. Scott & Heather A. Wier, *Earnings Dilution and the Explanatory Power of Earnings for Returns*, 34 *J. Accounting & Econ.* 89 (2001) (same).

<sup>33</sup> This point, about the huge risk related costs of stock-based compensation was stressed in the literature. See, e.g., Hall & Murphy, *supra* note 11, at 56 ("Companies paying options in lieu of cash are effectively borrowing from employees, receiving employment services today in return for highly variable (and often nonexistent) payouts in the future. But risk-averse undiversified employees are unlikely to be efficient sources of capital, especially compared to banks, private equity funds, venture capitalists and other investors who specialize in managing risk and providing capital.")

<sup>34</sup> See Paul A. Gompers, Joy L. Ishii & Andrew Metric, *Corporate Governance and Equity Prices*, 118 *Q.J. Econ.* 107 (empirically comparing corporate governance strength of certain types of firms).

managed by founders with large equity stakes, and they are unlikely to harm firm value in exchange for an artificial increase in profits.<sup>35</sup>

Moreover, by early 2003, more than 200 companies that use stock-based compensation had voluntarily begun to include options as an expense, thus forgoing the favorable accounting treatment.<sup>36</sup> But most importantly, new financial accounting standards now mandate recognizing option-based pay as an expense.<sup>37</sup> The favorable accounting treatment is now history. If this accounting treatment did play a role in the emergence of the stock-option trend, it can no longer justify its existence, and although firms are reconsidering the use of stock-based compensation there is no sign that this phenomenon is close to disappearing.

## 5. MORALE, TEAMWORK, AND NORMS

The next possible explanation for the popularity of broad-based employee stock ownership plans focuses on the effect this type of compensation has on the norms and morale of the firm workforce. Under this argument, stock or stock-option grants change the status of the employee from an ordinary worker to an owner and transforms the firm's workforce into a community. Once workers become owners, they develop social norms that entail that they cooperate with other members of their community and devote as much effort as possible to the community's prosperity. This may also explain why all workers should be rewarded, although not necessarily to the same extent, so that no one feels left out of the community. In fact, this ideal is the same model often manifested by the employers themselves. In the words of Microsoft CEO Steve Balmer, "Our compensation philosophy is simple ... . We want to attract and retain employees by offering *real ownership* and great long-term financial incentives."<sup>38</sup>

The phrase "real ownership" conceals the fact that the fraction of ownership granted to the individual employee is minute. But, just as people do not calculate their fraction of ownership in their household nor in their narrow community, employees are expected to do their utmost for their corporation once options are introduced even if their financial benefit from this behavior is miniscule. The norms generated by the stock-option compensation measure are thus supposed to overcome the firm's necessity to monitor the recipient employees.

While I doubt how much water this argument holds, I will nonetheless detail another impact stock-based compensation has on social norms and human behavior that has evaded the literature. Namely, stock-based compensation has an interesting role in inducing employees to monitor their peers from the aspect of social norms and irrational

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<sup>35</sup> See Oyer & Schaefer, *supra* note 17, at 16 (raising the examples of Oracle and Microsoft).

<sup>36</sup> David Aboody, Mary E. Barth & Ron Kaszniki, *Firms' Voluntary Recognition of Stock-Based Compensation Expense*, 42 *J. Acct. Res.* 123 (2004)(discussing voluntary firm decisions to recognize option compensation as an expense) ; Catherine Schrand, *Discussion of Firms' Voluntary Recognition of Stock-Based Compensation Expense*, 42 *J. Acct. Res.* 151-153 (2004)(same).

<sup>37</sup> This new financial account standard was effective as of December 2004. See Statement of Financial Accounting Standards (SFAS) No. 123 (revised 2004) Share-Based Payment.

<sup>38</sup> Announcement by Steve Balmer, CEO, Microsoft Website, available at <http://www.microsoft.com/presspass/press/2003/Jul03/07-08CompPR.msp>.

behavior. This stands in contradiction to the traditional view that stresses the role of such compensation in inducing investment of effort and maintaining cooperation. To appreciate my monitoring argument, it is necessary to first understand that in the absence of stock-based compensation, the work environment is tainted by certain cognitive biases identified by behavioral economy<sup>39</sup> and by certain flaws identified by organizational psychology. So as not to stray from the scope of this essay, I will only briefly sketch a few of these biases and flaws and will then explain how stock-based compensation assists the corporation in partially overcoming the challenges that stem from them.

The first phenomenon, documented in a seminal experiment by Asch, is conformism.<sup>40</sup> Simply put, people tend to heed the consensus and put aside their own beliefs, moral opinions, and even good judgment. Conformism can be dangerous if a firm's workforce adopts detrimental trends such as treating customers poorly or stealing from the employer. A second, well-documented phenomenon in organizational psychology is workers' obedience to what they perceive to be a legitimate authority within the organization. The potential harm in such a tendency lies in the fact that employees rarely try to contradict their supervisors, even if a supervisor's behavior is harmful to the firm and its shareholders. Third, and as experiments in behavioral economics have shown, people are often irrational in that they have a so-called self-protective or self-serving bias.<sup>41</sup> This bias allows them to overlook flaws in their own behavior or the environment and believe that their acts are moral and good for all parties involved. In the workplace, this bias allows workers to bury their heads in the sand and ignore almost any misbehavior carried out by their colleagues and managers, since confrontation always comes at a personal cost.

Finally, three additional pervasive cognitive biases are particularly relevant: the status quo bias, the availability bias, and the anchorage bias. All three biases are grave impediments to any employee-monitoring endeavor. The meaning of the status quo bias is that people tend to preserve the current state of affairs,<sup>42</sup> and in the workplace, if that

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<sup>39</sup> The field of behavioral economy, which is an interdisciplinary mix of psychology and economics, was pioneered by Tversky and Kahneman. See generally Amos Tversky & Daniel Kahneman, "Judgment Under Uncertainty: Heuristics and Biases," 185 *Science* 1124 (1974); Amos Tversky & Daniel Kahneman, "Judgment Under Uncertainty: Heuristics and Biases", in *Judgment Under Uncertainty: Heuristics and Biases* 3 (Daniel Kahneman, Paul Slovic & Amos Tversky eds., Cambridge University Press 1982); Amos Tversky & Daniel Kahneman, "Choices, Values, and Frames," 39 *Am. Psych.* 341 (1984); Amos Tversky & Daniel Kahneman, "Rational Choice and the Framing of Decisions," in *Rational Choice: The Contrast Between Economics and Psychology* 67 (Robin M. Hogarth & Melvin W. Reder eds., Chicago University Press 1987).

<sup>40</sup> Steven P. Robbins, *Organization Behavior: Concepts, Controversies, Applications* 257-258 (Prentice Hall, 1998) (describing Asch's famous experiment in which people followed the errors of their group members in regard to easily identified objective matter).

<sup>41</sup> Norbert L. Kerr, Robert J. MacCoun & Geoffrey P. Kramer, "Bias in Judgment: Comparing Individuals and Groups," 103 *Psych. Rev.* 687 (1996) (discussing the operation of the self-serving bias in groups). See also Jon D. Hanson & Douglas A. Kysar, "Taking Behavioralism Seriously: The Problem of Market Manipulation," 74 *N.Y.U.L. Rev.* 630, 649 (1999) (describing an experiment in which students who were designated as either plaintiff or defendants were asked to make an objective assessment of the judgment in the case: assessments of students designated as plaintiffs were much higher than those designated as defendants, although both groups considered the same case).

<sup>42</sup> See, e.g., William F. Samuelson & Richard Zeckhauser, *Status Quo Bias in Decision Making*, 1 *J. Risk & Uncertainty* 7 (1988) (discussing human preference for the present state).

state warrants modification, employees will barely notice this fact or else will not seek to effect any change. The availability and anchorage biases refer to the fact that available and accessible information and events make lasting over-rated impressions<sup>43</sup> and that people hang on to information given to them even when there is no evidence of its credibility.<sup>44</sup> Since workers are introduced to existing practices and facts by their supervisors and peers, these two biases make it harder for employees to criticize their colleagues and doubt their statements.

In the absence of incentive pay, these biases and human characteristics work in concert against the possibility of peer monitoring. The natural tendency is to avoid conflict, accept the current state of affairs and any weak explanation that may support it, and overlook problematic occurrences and behaviors. Stock-based compensation releases certain forces that mitigate these problems. Any harmful acts that hurt the shareholders also hurt the recipient employee. The employee can hardly remain indifferent to such harm, for this is no longer a self-serving strategy. As norms of conformity conflict with norms of preventing harm to oneself, the employee becomes embittered and, in some cases, will report or otherwise act against the perpetrators of the harm to the firm.

## 6. TAX CONSIDERATIONS

Undeniably, tax considerations are critical in understanding the surge in use of stock-based compensation, particularly stock–option plans. One such consideration, in brief, is that tax deferrals are allowed for so-called "nonqualified" options and both tax deferrals and improved tax rates for the employee are available for so-called "qualified" options.<sup>45</sup> A second tax consideration, relevant only for top management, is that, under section 162(m) of the Internal Revenue Code, compensation beyond \$1 million paid to executives named in the company's proxy statement (usually the five highest-paid managers) cannot be deducted as an expense for tax purposes.<sup>46</sup> However, section

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<sup>43</sup> See, e.g., Shelley E. Taylor, "The availability bias in social perception and interaction," in *Judgment under uncertainty: Heuristics and Biases*, 3, 190-200 (Daniel Kahneman, Paul Slovic & Amos Tversky eds., Cambridge University Press, 1982) (a broad discussion of the availability bias); Jonathan Baron, *Thinking and Deciding* 141-143 (2000) (same).

<sup>44</sup> Scott Plous, "Thinking the Unthinkable: The Effects of Anchoring on Likelihood Estimates of Nuclear War," 19 *J. App. Soc. Psych.* 67 (1989) (a famous experiment about assessment of the risk of a nuclear war).

<sup>45</sup> For a short summary, see Hall & Murphy, *supra* note 11, at 53. In reality, most options granted as part of an employee stock-option plan are nonqualified, due to certain restrictions that attach to the *qualified* plans and the firm's inability to deduct a compensation expense for those options. *Id.* The deduction of a compensation expense for nonqualified options is a major issue at certain firms that enjoy a huge tax benefit from this non-cash expense. See, e.g., Michelle Hanlon & Terry Shevlin, Accounting for Tax Benefits of Employee Stock Options and Implications for Research (Working Paper 2001), available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=271310](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=271310), at 1 ("Cisco received a tax benefit of nearly \$2.5 billion dollars from the exercise of employees' stock options. As a result, the company paid little (and possible no) federal income taxes while reporting \$2.67 billion in profits. Cisco obtained the tax benefit from a provision in the tax code that allows firms an income tax deduction equal to the gain recognized by employees on the exercise of their nonqualified options."). See also David Walker, Is Equity Compensation Tax Advantaged?, 84 *B. U. L. Rev.* 695 (2004) (broad discussion of tax issues related to stock-based compensation, revealing that the tax advantage of such compensation is not obvious).

<sup>46</sup> I.R.C., 162(m).

162(m) exempts "performance-based" compensation from this burdensome limitation, which ultimately contributes to the attractiveness of using options.

The inevitable conclusion of this brief discussion is that taxation considerations are a major factor in the development and use of stock-based compensation.<sup>47</sup> However, this explanation does not render the rest of the discussion redundant, for two chief reasons, the first from a normative perspective and the second at the descriptive level. First, as manifested in the abovementioned section 162(m) exemption, Congress intentionally drafted tax breaks to encourage "performance-based" compensation. It is therefore important to question whether stock-based compensation should be encouraged and, particularly, which incentives, if at all, this compensation method creates. Second, it is important to recognize the huge waste involved in this type of compensation to understand that the tax benefits offered, no matter how substantial, cannot be the sole reason for the popularity of stock-based compensation.

Employees are typically risk-averse. The value of stock-based compensation is highly contingent on risk factors and uncertainties that are way beyond the control of the recipient employees, and risk-averse employees therefore discount the value of stock-based compensation. Firms could substitute this type of compensation with a much lower payment in cash that does not entail uncertainty. The difference between the two alternatives is the cost, or the waste, involved in stock-based compensation. Several leading economists have tried to quantify this cost, concluding that, operating under reasonable assumptions about risk aversion and diversification, employees value options (with ordinary features) at "only about half of their cost to the firm."<sup>48</sup> This astounding gap cannot be overcome solely by any tax benefit, rendering pertinent the inquiry in the next section into the motivational benefits arising from stock-based compensation.

#### IV. REVERSE MONITORING: A NEW VIEW OF ESOPs AS AN INCENTIVE MECHANISM

##### 1. On Two Versions of Agency Theory Explanations

A recent article entitled *Why Do Firms Use Incentives That Have No Incentive Effects?*<sup>49</sup> exemplifies the puzzle of mid-level employee incentive pay. As will be shown below, mid-level employees receive modest option grants in comparison to executives, and their efforts for the firm's benefit have negligible impact on the firm's market value relative to the effect of the efforts made by the CEO and a small group of top executives. This reality has led researchers to argue that the common agency theory understanding of incentive pay does not hold in this context, driving them to search for explanations

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<sup>47</sup> This conclusion does not take into account all the taxation effects on the employer. When all such complex effects are taken into account, at least one scholar argues that, in practice, there is no aggregate tax advantage to using stock option as compensation. See Walker, *supra* note 45, at 701 ("So, is equity compensation tax advantaged? In theory, yes. In practice, generally no").

<sup>48</sup> Hall & Murphy, *supra* note 11, at 56; *see also* Brian J. Hall & Kevin J. Murphy, Optimal Exercise Price for Executive Stock Options, 90 *American Economic Review* 209, 211 (2000); Hall & Murphy, *supra* note 16, at 3. Another study estimated that for every dollar worth of options, the company actually wastes \$0.64 to cover the risk premium for the employees. *See* Oyer & Schaefer, *supra* note 17, at 16.

<sup>49</sup> Oyer, *supra* note 5, at 1.

beyond the scope of agency theory.<sup>50</sup> The principal point of this paper, however, is that agency theory can in fact supply a good explanation for the prevalence of employee ownership plans, although not the one usually advanced in the literature. To elucidate the difference between the two arguments stemming from agency theory, it is important to briefly review the fundamental features of the theory.<sup>51</sup>

Under agency theory, whenever one person, the agent (in our case, an employee), is required to fulfill a task for another person, the principal (in our case, the employer), a conflict of interest emerges. This conflict means that the agent may pursue her own agenda rather than actions that are optimal in fulfilling her task for the principal. As a result, goes the argument, the principal-agent setting entails three types of costs. The first type is monitoring costs. Since the agent is prone to deviate from the goals set for her, the principal must employ expensive means to verify what her agent is doing and, if necessary, to call her to order. Hence, business owners review the accounts to prevent deviances; restaurant owners use covert inspectors to verify the level of service; owners of diamond mines check the clothes of miners at the end of the day to prevent theft. These types of efforts and expenses are termed monitoring costs.

The second inevitable type of cost is bonding costs. Bonding measures do not assist the principal in scrutinizing and governing the actions of the agent, but, rather, are intended to ensure that the agent sticks to the objectives of her employment. Hence, a public servant is often required to cut any ties he may have with the business community to ensure objectivity; financial reporters or advisors are required to refrain from personal investments to prevent skewed recommendations; and workers go to much trouble to bring references and pursue studies, which, at least in part, are efforts aimed at showing how devoted they are going to be to their jobs.

Finally, even after monitoring and bonding costs, there is a residual loss to be borne. This means that there is always enough room for a conflict of interest to arise between the principal and agent. For example, a certain amount of theft by workers always occurs, some confidential information will always leak, and employee effort levels rarely meet those of owners. In fact, as long as the residual losses are lower than the cost of additional bonding or monitoring costs required to overcome them, it is efficient to incur these losses.

Into this normative setting enters the traditional account of incentive pay. Since any worker is an agent and therefore presents a risk of misbehavior, theft, disgorgement of confidential information, and, most often, simple laziness, agency theory calls upon the parties to design the employment agreement accordingly. Specifically, under agency theory, compensation should be structured to overcome these problems. If the employee can hope to receive a part of the gains accrued by the employer from optimal service, then the agency problem can be alleviated. Linking pay to performance of the employer's stock on the stock exchange, for example, by granting options, goes the argument, may achieve this desired goal.

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<sup>50</sup> See, e.g., Hall & Murphy, *supra* note 11, at 54 ("Given the increasing prevalence of broad-based plans, a compelling theory of employee stock options must explain not only executive stock options, but also options granted to the rank and file.")

<sup>51</sup> These basic features are outlined in the seminal work of Jensen and Meckling, considered the founding fathers of agency theory. See Jensen & Meckling, *supra* note 1.



However, option grants are undeniably a highly expensive method of compensation. The main reason is that employees, like most people, are risk-averse. Since the value of option grants easily fluctuates due to factors beyond the employee's control, options are an extremely risky asset from her perspective. Moreover, employees are tied with their human capital to the firm, and putting much of their personal wealth in options means putting all their eggs into one basket and further increasing their risk. Taken together, the risk-bearing factor causes employees to accept much lower compensation in cash instead of an option grant with an equivalent market value. Therefore, payment with options, which employees value less, is expensive currency for firms.<sup>52</sup> Furthermore, since no one can go to the grocery with options, they cannot replace the employee's entire salary. Therefore, options usually supplement—at least in part—regular salary,<sup>53</sup> thereby further increasing the cost of options to the firm and its shareholders.

The incentives that options create must overcome these costs to make option grants worthwhile. Note, though, that, under the traditional argument, option grants are not intended to allow the principal to watch and govern the agent's actions, and therefore they cannot be accounted for as monitoring costs. On the contrary, their role is to induce employees to exert effort even when the employer is not watching. To some extent, this argument even assumes that employee efforts are non-verifiable from the point of view of the employer. In agency theory terms, therefore, the proper specification of the costs that options entail is bonding costs. The employee accepts options, even though she would prefer the equivalent in cash, in order to commit to the objectives of the shareholders. The problem with this argument is that it cannot stand up to any test of reality, at least in the context of the actual compensation plans of most workers.

A recent study shows that a typical firm grants options with a value equal to one-year's salary to middle managers and that these managers own a very small fraction of the firm (less than one-one-thousandth of a percent in the case of the larger firms).<sup>54</sup> Careful econometric analysis shows that using options to motivate managers to exert efforts under these circumstances is, therefore, ludicrous and, in the words of the authors, "Given our calculations here, we find it very difficult to believe that stock options could be the most efficient incentive mechanism available to firms."<sup>55</sup> To exemplify, consider an engineer who receives an option grant of \$100,000 in a firm with a market value of \$10 billion. To increase the value of her fractional holdings by just 1% (equivalent to \$1000), she needs to increase the firm's market value by \$100 million. It is doubtful that any effort on her part could achieve this goal, especially an effort that is valued at less than \$1000 from her perspective. Recall also the waste related to risk-bearing on which

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<sup>52</sup> The shareholders who suffer from dilution are those who bear the costs of the payment in options. Since shareholders with diversified portfolios are risk-neutral, they will prefer that the firm pay lower amounts in cash rather than issue additional shares whose worth exceed those amounts. Put differently, transferring a lottery ticket (i.e., options) from a risk-neutral person (i.e., the shareholders) to a risk-averse person (i.e., the employee) entails much loss.

<sup>53</sup> See Hall & Murphy, *supra* note 11, at 56 ("Indeed, most broad-based option plans are added on top of existing competitive pay packages.")

<sup>54</sup> See Oyer & Schaefer, *supra* note 17, at 20.

<sup>55</sup> *Id.* at 23.

we have elaborated earlier in our discussion.<sup>56</sup> Many managers would be willing to exchange options worth \$100,000 for half the amount in cash.<sup>57</sup> Under these circumstances, it seems unrealistic to surmise that the firm cannot come up with a better mechanism to ensure optimal effort on the part of its employees.

While exerting efforts to perform better seems a remote rationale for the use of stock options, the empirical research still finds a (remotely) plausible incentive effect for options, as follows:

“The most favorable case that can be made for options-as-incentives is this: options are sensible for incentive purposes under a very limited set of circumstances – namely, if employees take actions that have large value implications for the firm, the costs to the employee of taking these actions are very small, and it is extremely difficult for firms to observe whether employees are taking these actions.”<sup>58</sup>

This allegedly hypothetical and remote case for an incentive-based justification for options is precisely the case of reverse monitoring. One should not think of options, especially those granted to mid-level employees, as a method of encouraging recipient employees to work harder, but rather as an incentive to watch other workers and constituencies of the entity. Put differently, the costs of options borne by the firm are monitoring costs, not bonding costs. Armed with options, employees will ensure that others do not harm the firm. Note that all three requirements of the empirical study are fulfilled here. First, no special effort is needed beyond paying attention, as employees are natural monitors of their peers. While outside agents need to penetrate the organization and use surveillance techniques or indirect monitoring methods, the employees are already there, performing their day-to-day tasks. The employer can arrange the work force and the work tasks to enhance the ease of monitoring. For instance, working in groups and dividing up one task among several groups to require interaction, the reality in many high-tech firms, is one means of doing this. The physical structure of the work environment is another method, as open space and any other arrangement that increases transparency allow for easy monitoring. In many new economy firms, an employee cannot make a phone call or perform a task on her computer screen without other employees inadvertently noticing. In these places, options are commonly believed to motivate employees to work harder because of the options they received, but it actually make more sense that they work harder because their peers have received options and are watching them closely.

Second, while the efforts exerted by a single mid-level employee cannot contribute much to improving the market value of a large firm, the employee can still significantly harm the firm, especially in the knowledge industry. In an interview with a mid-level manager at Intel, the manager estimated that each engineer in his group could easily harm Intel significantly by releasing certain information to a competitor.<sup>59</sup> Intel, with its multi-billion-dollar market value, is particularly vulnerable to such leaks due to

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<sup>56</sup> See *supra* note 48 and the text above.

<sup>57</sup> See Hall & Murphy, *supra* note 11, at 56.

<sup>58</sup> *Id.* at 24.

<sup>59</sup> Interview with one of Intel’s mid-level managers on January 2, 2006.

the nature of its assets. While one lone engineer cannot reasonably improve the market value significantly, the potential damage that the individual worker can wreak to this value is enormous. Investing in monitoring is, therefore, crucial, and the more vulnerable a firm, the more options it is likely to issue to its employees. It is hard to find an effective alternative to so many good and intelligent monitors already positioned within the facility. Monitoring by employees is, thus, both non-substitutable and likely to prevent much harm, thus fulfilling two additional requirements for effective use of options laid out in the empirical literature.

## 2. Additional Empirical Verification

The findings of additional recent empirical studies of broad-based employee ownership plans seem to comply with the predictions of this theory and fail to conform to the classic incentive-based explanation. The one paper compares executive option grants to non-executive option plans, following a sample of 1170 firms through the years 1996-2001.<sup>60</sup> Similar to the results of previous studies, the authors of this study found that top-five executives receive a disproportionate share of the total grants (20%) and that ESOPs tend to increase both the firm's valuation and net income.<sup>61</sup> The study's unprecedented finding was that, in the regressions, the non-executive portion of the grant had a more pronounced and positive effect on both net income and firm valuation.<sup>62</sup> Given this finding, the authors took for granted the traditional account of options as an incentive mechanism and made the following statement:

“On the surface it may seem surprising that the effect of options appears to be smaller for executives than for lower-level employees since, from a risk/incentive perspective, it seems likely that executives have more control over firm performance and may be less risk averse”<sup>63</sup>

Thus, the authors implicitly consider option recipients to be those who should be encouraged to exert additional costly effort, and they therefore logically assume that broad-based plans entail waste. Since lower-level employee efforts can barely affect a firm's market value, the authors were surprised to find that broad-based plans increase firm performance and market value more than executive-only plans do.<sup>64</sup> However, under the reverse monitoring argument, even the slightest incentives can suffice to induce one employee to monitor her peers, since no extraordinary efforts are necessary on her part to do so. This is especially true in firms and industries in which a lack of careful monitoring at all levels of the organization can lead to much damage. These firms reveal themselves as such by adopting broad-based ESOPs, and it therefore comes as no surprise

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<sup>60</sup> Wayne Landsman, Mark Lang & Shu Yeh, *Governance and the Split of Options Between Executive and Non-Executive Employees* (Working Paper 2005) available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=688083](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=688083).

<sup>61</sup> *Id.* at 7.

<sup>62</sup> *Id.* at 16-20.

<sup>63</sup> *Id.* at 6.

<sup>64</sup> This surprising conclusion led the authors to search for a different answer, and they eventually argued that weak corporate governance harms the positive outcomes of executive stock option plans. *Id.* at 7 (“[I]n the absence of strong governance, executive options have little or negative consequences for valuation and future profitability.”).

that these measures increase their performance and valuation. Most significantly, the ancillary findings of this empirical paper support this notion and the entire reasoning of the reverse monitoring argument. These findings, which the authors did not deem of particular importance, are summarized in the paper as follows:

“A larger proportion of options tend to go to lower-level employees for firms that are larger, have more employees, spend more on research and development and have higher market-to-book ratios.”<sup>65</sup>

All four features in this finding conform to the prediction of the reverse monitoring argument. First, larger firms and firms with more employees not only issue more options to low-level employees, but do so in higher proportions than other firms relative to their size and employee base. Under the traditional incentive-based explanation of options, this finding should be puzzling. Large firm size makes it harder for the individual employee to improve firm value through her efforts; a sizable workforce at a firm creates free-riding in the sense that one employee’s inaction of effort can be easily overcome by the efforts of others. However, it is precisely these two characteristics that make monitoring employees in such firms by management difficult. Hence, management must expend more resources on monitoring by peer employees, which is the result of a high proportion of stock grants to non-executives. It is harder for options to cause employees to exert additional effort in larger firms and firms with a larger workforce; thus, it is much more important to motivate these workers to watch one another. And since options can barely serve to directly motivate a mid-level employee to increase her effort level, the latter monitoring effect is crucial.

Second, options to lower-level employees are more common in firms with higher market-to-book ratios. Firms with high market-to-book ratios are often those firms with high levels of intellectual property, since intellectual property developed within the firm boundaries does not appear in the financial statement (and, hence, has no effect on the firm’s “book” value). And since intellectual property is especially vulnerable to leakage and tampering, its existence poses a risk of an adverse material effect on the firm’s market value. Consequently, using options to induce peer monitoring is especially suited to protect the market value of the firm that holds much of this property.

Finally, and related to the previous point, firms that spend more on research and development issue a larger proportion of the option plans to lower-level employees. In the conventional wisdom, this finding makes sense since workers in such firms are believed to be highly creative and significant to firm value. However, at the individual level, this argument is questionable, as one worker’s efforts, creative as they may be, can hardly make much of a difference, at least in most cases and most of the time. Nevertheless, firms with high R&D levels are usually new economy firms—firms in the knowledge industries. Such knowledge can be well protected by peer employees encouraged to monitor through option grants.

A second recent empirical study provides additional reinforcement of the reverse monitoring view and explicitly contradicts the traditional incentive-based argument. The authors set forth the mission of their paper as follows:

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<sup>65</sup> *Id.* at 17.

“There is, however, a small but growing body of empirical literature that provides evidence that firms that broadly disperse stock options have greater performance ... . Do certain contextual factors (e.g., firm size, industry, technology) influence the relationship between broad-based stock options and performance? In this paper, we focus on one such contextual factor, firm size. *We chose firm size because according to existing theory, group incentives such as stock options are expected to be effective at monitoring employees only in small firms.*”<sup>66</sup>

This entire mission is, of course, rooted in the traditional understanding of options as providing incentives to work harder and the view of the recipient employee as the entity that should be monitored. The authors explain the expected negative relationship between size and firm efficacy on two levels:<sup>67</sup> First, as explained above, the larger the firm, the less influential each employee is on the firm’s total output, and therefore motivating her with options that rely on that total output is less feasible. Second, and more interesting, greater firm size makes it harder to motivate employees even under a much richer perception of the firm. Since interaction between employees is recurrent, they may cooperate with one another and refrain from free-riding and thus achieve an optimal outcome for everyone, even if each employee’s compensation is keyed to the total output.<sup>68</sup> This argument is often used in the context of group incentives and profit-sharing because the harder everyone works, the greater the profits to be shared for the benefit of everyone. However, even with this deeper perception of the firm and incentive structure, large firm size is likely to be a hindrance to option efficacy. The larger the firm, the harder it is for cooperation to emerge, thereby endangering the joint commitment to work harder in order to maximize total output and, in turn, each worker’s compensation.

Given these two effects of size, the authors expected to find that the benefits of options to the issuing firm would decline with firm size (less than 500 workers, between 500-5000 workers, and over 5000 workers). They therefore gathered data on 312 firms that had adopted broad-based option plans, divided them into three groups based on size, and matched up each size-group with a corresponding sample of non-adopting firms. The study followed the firms throughout the years 1995-1997, measuring multiple aspects of firm performance (profit margins, shareholder return, labor productivity, and return on assets).<sup>69</sup> This study covered almost 1,200,000 employees who received options, out of about 10 million ESOP recipients in the entire U.S. economy.<sup>70</sup>

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<sup>66</sup> James C. Sesil & Maya K. Kroumova, *The Impact of Broad-Based Stock Options on Firm Performance: Does Firm Size Matter?* 3 (Working Paper 2005) *available at* [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=717081](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=717081).

<sup>67</sup> *Id.* at 5.

<sup>68</sup> *See, e.g.*, Robert Axelrod, *The Evolution of Cooperation* (Basic Books, 1984) (discussing the emergence of cooperation in reiterated prisoner dilemmas).

<sup>69</sup> *Id.* at 6-8.

<sup>70</sup> *Id.* at 3, 7.

The authors were surprised to find that option-adopting firms outperformed their non-adopting peers in each size category and not only in the small size category.<sup>71</sup> Moreover, when they compared among adopting firms, the larger firms were found to outperform the smaller ones.<sup>72</sup> These unanticipated findings led the authors to conclude without satisfaction that “we find strong evidence that stock option firms perform better than the non-stock option firms, however, we do not find strong evidence that small stock option firms perform better than stock option large firms”<sup>73</sup> and, consequently, call for more research on the topic.

Once again, from the perspective of the reverse monitoring explanation, these findings come as no surprise. A large workforce sometimes prevents efficient monitoring by means of the traditional employment hierarchy. Granting options to many employees will cause them to monitor one another, a task that they can easily perform. If employees work any harder in these circumstances, it is not because their options have motivated them to do so, but, rather, because their peers are watching closely. Moreover, firm size in terms of number of employees often reflects firm maturity. A seasoned firm, with seasoned technology, may need to use options to protect this technology. If technology is both a vulnerable and critical asset for the organization, option recipients will be alert in protecting against third-party infringement.

## V. Concluding Remarks

Empirical data show that options cause firms to flourish. Intuition tells us that they motivate employees to work harder in order to improve firm value and, in turn, the value of their grants. But if this argument does not hold, since the average correlation between individual employee effort and total firm value is slim, then the intuition is that employees with options work harder because they “feel” like owners and therefore care more about the firm. This paper suggests an alternative view of options, where options are more of a stick than a carrot. Undoubtedly, options cause employees to exert additional effort themselves and cooperate, but, it is my claim, this stems from the fact that options cause the individual employee to care about the acts and whereabouts of her peers. While substantial additional efforts cannot be motivated by slim financial incentives, monitoring others merely requires awareness and attention. As I have showed in this paper, this new understanding can shed light on recent empirical findings and provide explanations to puzzles such as the extensive use of options in new economy firms and option grants to top executives in concentrated-ownership firms.

Since the tiny fraction of ownership that the average employee receives does not turn gigantic firms into Greek democracies or mutual societies, I also question the psychological explanation of options as fostering a sense of ownership in employees.

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<sup>71</sup> *Id.* at 9 (“The descriptive statistics reported in Table 2 show that, within each size category, broad based stock option companies have higher average productivity, return on assets (ROA), profit margin and capital intensity compared to non-stock option companies.”).

<sup>72</sup> *Id.* (“Comparing small to large stock option companies using the simple means reported in Table 2 shows they had similar [labor] productivity levels, but small firms appear to lag behind large ones with respect to ROA and profit margins.”).

<sup>73</sup> *Id.* at 12.

Options are a monetary compensation; they are not flowers or gifts for the holidays that employers distribute to show that they care and to raise morale. Therefore, it is important to carefully analyze why options bring about effective results as a monetary incentive. People in close-knit communities, such as family units, cooperate with one another due to a sense of belonging and genuine and sincere caring, but it is doubtful that financial incentives cultivate such altruistic behavior. I therefore argue that options promote cooperation and industriousness because there is no way to get away with exerting less-than-maximum effort when your peers are watching and considering the effects of your behavior on their options. Accordingly, any misconduct may result in informal sanctions, singling out, and, in some cases, even reporting to supervisors. Moreover, arranging the workplace in a way that allows for transparency of employee efforts—so prevalent in many of the firms that use options—is not aimed at generating a friendly work atmosphere for employees, but, rather, at reinforcing peer monitoring and thus supplements the use of options.

Before concluding, it is important to explain that this theory is not a conspiracy theory. CEOs do not devise ESOPs with the intention of causing their employees to spy on one another. CEOs do, however, find out, either by hunch or by observation, that options stimulate labor to work harder and perform better. CEOs then choose to tell themselves and their subordinates a pleasant story, in which options cause workers to exert additional effort since they wish to improve firm value—or, alternatively, that options simply motivate employees since employees are proud to be part of an entity that regards them as owners. The perhaps more convincing story, the one in which employees work harder because options turn their friends into monitors, is less convenient and therefore silenced or never surfaces.

Finally, this essay discussed the concept of reverse monitoring in the context of broad-based stock ownership plans and shed light on the puzzles that surround it. The reverse monitoring view of stock-based compensation concentrates on the role of the recipient of incentive pay as a monitor of other firm employees, including supervisors, in contrast to the traditional view of the recipient as the entity that should be monitored. This concept has many more applications that could not be delved into here at length. For one, reverse monitoring can explain the rise in stock-based compensation for executives in firms located outside of the U.S., which typically have concentrated ownership.<sup>74</sup> The common story of stock-based compensation for U.S. executives of U.S. firms explains that U.S. firms often have dispersed ownership.<sup>75</sup> The dispersed shareholders cannot effectively perform the role of monitor, and thus the monitoring gap is filled by stock options and the like, which align manager and shareholder incentives.

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<sup>74</sup> See, e.g., Michael H. Bradley & Anant Sundaram, *The Emergence of Shareholder Value in the German Corporation*, 16 (2003), available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=463840](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=463840) (reporting that, in 1990, no large German firm, included in the DAX 30 index, had an ESOP, in 1995 27% of the large German firms had adopted ESOPs, and in 1999 no less than 73% of these firms had adopted ESOPs for their executives).

<sup>75</sup> See Andrei Shleifer & Robert W. Vishny, *A Survey of Corporate Governance*, 52 *J. Fin.* 737 (1997) (reporting that U.S. firms, in contrast to firms in most world economies, have a dispersed ownership structure); Rafael La Porta, Florencio Lopez-de-Silanes & Andrei Shleifer, *Corporate Ownership Around the World*, 54 *J. Fin.* 471 (1999) (same).

This story, however, does not fit most economies outside the U.S., where public firms have concentrated ownership and, accordingly, usually a controlling shareholder.<sup>76</sup> A controlling shareholder, unlike a dispersed shareholders' body, has both the incentives and the means to monitor and discipline managers. Why then, is stock-based compensation, a costly mechanism, so common today in such firms as well? The reverse monitoring concept suggests that executive stock compensation in these firms is meant to induce managers to monitor their supervisors. Equipped with options, these officers stand on guard against any misbehavior on the part of their own monitor—the controlling shareholder of the entity. A controlling shareholder sometimes has a perverse incentive to pursue her own goals at the expense of the minority, most significantly in the context of self-dealing transactions, which are not always beneficial to the firm.<sup>77</sup> This can result in a drop in the firm's share prices and harm to executives with substantial stock holdings. Such executives possess the knowledge as to whether a specific self-dealing transaction is good or bad for the firm, and their direct contact with independent directors and institutional shareholders may allow them to covertly block exploitative transactions.<sup>78</sup> In turn, when institutional investors examine self-dealing transactions in firms with stock-based compensation, investors should be easily persuaded by the controlling shareholder that she is not pursuing her own agenda, rather than the common interests of all shareholders. This means that controlling shareholders can commit to act for the firm by granting stock-based compensation to their executives. To conclude, in this setting, reverse monitoring explains that executive stock compensation can work to alleviate the agency problem between the controlling shareholder and the minority and not only between management and a dispersed shareholders body.

Another important application of the reverse monitoring approach comes into play in the area of gatekeepers, such as outside directors, investment bankers, or outside legal counsels.<sup>79</sup> A recent paper, concentrating on the role of outside directors as gatekeepers, suggests rewarding gatekeepers with cash grants when they expose corporate misbehavior and in particular accounting fraud.<sup>80</sup> The authors of the paper reject the idea

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<sup>76</sup> The literature, however, views stock-based compensation as a method designed to alleviate the agency problem between managers and shareholders and does not consider its role in concentrated ownership firms. See Mark J. Roe, "The Institutions of Corporate Governance" in *Handbook of New Institutional Economics* (Claude Menard & Mary M. Shirley eds., 2004) 371 (analyzing different types of agency costs and then describing stock-based compensation as a measure intended to alleviate the so-called "horizontal" agency problem existing between executives and the dispersed shareholders).

<sup>77</sup> See Simon Johnson et al., *Tunneling*, 90 *Amer. Econ. Rev.* 22 (2001) (describing self-dealing as the gravest corporate governance problem outside the U.S.).

<sup>78</sup> See, e.g., Guhan Subramanian, *Fixing Freezeouts*, 115 *Yale L.J.* 2 (2005) (discussing the role of both outside directors and informed minority shareholders in blocking unfair going-private transactions, which are a certain type of self-dealing transactions that can be extremely detrimental to the firm); Simeon Djankov, Rafael La Porta, Florencio Lopez-de-Silanes & Andrei Shleifer, *The Law and Economics of Self-Dealing* (NBER Working Paper No. 11883, 2005) available at <http://nber.org/papers/W11883> (an international comparison of the different mechanisms used around the world to block harmful self-dealing transactions).

<sup>79</sup> See Reinier Kraakman, *Gatekeepers: The Anatomy of a Third Party Enforcement Strategy*, 2 *J.L. Econ. & Org.* 53, 53 (1983) (defining "gatekeepers" as private parties who are able to disrupt misconduct by withholding their cooperation from wrongdoers).

<sup>80</sup> Assaf Hamdani & Reinier Kraakman, *Rewarding Outside Directors* (Mimeo 2006) (considering the use of rewards to motivate outside directors' diligence).



of equity compensation to gatekeepers since, in cases of accounting fraud, stock-based compensation can actually cause them to turn a blind eye to the fraud that drives share-prices up; moreover, in endgame scenarios, as in the Enron case, stock-based compensation does not provide any incentive, since in bankruptcy stock compensation is generally worth nothing.<sup>81</sup> While these concerns carry great weight, they do not justify ruling out stock-based compensation for gatekeepers. First, there are instances of corporate misconduct, such as self-dealing by management, that, unlike accounting fraud, do not inflate the value of the firm's stock and therefore do not create any perverse incentives for the gatekeeper who is compensated with stock. Second, if stock-based compensation is designed properly—namely, with a sufficiently long horizon and a disgorgement of past profits that are based on fraud from the gatekeepers' stock-based compensation<sup>82</sup>—gatekeepers will have incentive to fight accounting fraud as well (even in endgame scenarios), which never enhance the value of the firm in the long-run. These two adjustments to gatekeepers' stock-based compensation may overcome the concerns raised in the literature and preserve the advantage of stock-based compensation over cash grants. This advantage lies in the fact that stock compensation is automatic and fine-tuned. This means that, armed with stock compensation, the gatekeeper does not have to come forward and prove her case, as she would have to in the case of a cash prize, and every cent that she saves for the public shareholders is immediately reflected in the value of her compensation.

Last, but not least, reverse monitoring can explain why employee stock option plans are common in pre-IPO ventures and at partially privatized firms. With regard to pre-IPO ventures,<sup>83</sup> stock options to employees promise pre-IPO financial investors (such as venture capitalists and angel investors) that the firm's workforce will place pressure on the founders and entrepreneurs heading the firm to go public as early as possible. Since venture capitalists and other private equity investors hope for a fast exit, large option grants to many employees serve as a credible commitment from the management of the venture not to waste the invested funds and to do all that is possible to go public quickly. Any other behavior would be implausible when the entire firm workforce is vigilantly watching in the hope of cashing in on the stock component of their pay. Indeed, one entrepreneur described this feeling as “sitting on a volcano.”<sup>84</sup> As for partially privatized corporations, the reverse monitoring view serves to explain how stock compensation can overcome a pervasive problem that plagues these firms. The literature explains that government-owned enterprises under-perform in the market as management often concentrates on political goals to please the owner.<sup>85</sup> Hefty stock compensation to the

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<sup>81</sup> *Id.* at 17-23.

<sup>82</sup> The concept of disgorgement of past compensation, including profits from realization of stock options, is already present in the Sarbanes Oxley legislation with regard to executive pay. See Sarbanes-Oxley Act of 2002, 304(a)(1), (a)(2).

<sup>83</sup> See Jesse M. Fried & Mira Ganor, *Agency Costs of VC Control in Startups* (Working Paper 2005) available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=784610](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=784610) (describing the prevalence of the practice of issuing stock options at pre-IPO ventures).

<sup>84</sup> An interview with an entrepreneur whose firm was financed by a venture capital fund and has a workforce saturated with stock-options that expects to go public soon, January 5, 2006.

<sup>85</sup> See Andrei Shleifer & Robert W. Vishny, *Politicians and Firms*, 109 Q. J. Econ. 995, 1023 (1994) (discussing the harmful effect of politicians' control on firms); Nicholas Baberis, Maxim Boycko, Andrei Shleifer, & Natalia Tsukanova, *How Does Privatization Work? Evidence from the Russian Shops*,

executives and employees of such corporations promises to mitigate this problem and cause management to stand on guard against self-interested interference from above.

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104 J. Pol. Econ. 764, 765 (1996) (suggesting that private firms' efficiency is a result of appointing managers according to their abilities, whereas management appointments in public firms are political: "Managers of state firms are selected for their ability to get along with politicians, *address political concerns*, and lobby for assistance. In contrast, managers of private firms are selected for their ability to run them efficiently.").