Hidden Costs of Mandatory Long-Term Compensation

James C. Spindler[*]

After the 2008 financial panic, long-term compensation measures have gained favor as a way to limit managerial opportunism and excessive risk-taking. These measures, which may become mandatory for systemically important institutions, include restriction (i.e., deferral) of stock grants for a period of years, and, in the event of performance reversals, divestment of deferred stock and clawbacks of bonus compensation. These measures are considered uncontroversial enough that some have suggested that all public companies, not just systemically important firms, should adopt them.

In this Article, I argue that the benefits of long-term compensation have been overstated while the potential downsides have been largely ignored. Restricted periods for equity grants must be large compared to the executive's tenure in order to have a significant effect upon behavior overall, and mandatory clawback provisions end up transferring what would have been bonus pay into salary. Furthermore, to the extent that long-term compensation does affect behavior, these consequences are not necessarily good. I show that given fairly reasonable assumptions of executive risk aversion, the information content of long-term and short-term price signals, and managerial control over the timing of project execution and disclosure, a long-term focus can have significant negative effects.

INTRODUCTION

After the financial panic of 2008, the leading school of thought on executive compensation has shifted away from prescribing greater performance-based compensation.[1] Instead, reformers urge "long-term" compensation measures designed to limit risk-taking or forms of short-term stock price manipulation,

* Sylvan Lang Professor of Law, University of Texas School of Law and Professor, McCombs School of Business, University of Texas at Austin. For helpful comments, I would like to thank Sharon Hannes, Holger Spamann, and Jesse Fried.

such as accounting fraud.[2] The basic premise of these systems is to focus (sometimes exclusively) on long-term results in determining an agent's variable pay. For instance, Lucian Bebchuk and Jesse Fried propose that any equity awards managers receive must be restricted from cashing out for a period of years;[3] Sanjai Bhagat and Roberta Romano would disallow cashing out until sometime after the executive's retirement.[4] Such schemes, along with a mechanism for forfeiting pay in the event of malfeasance or poor performance, form the backbone of these new proposals. The sponsors of such plans view them as advisable for most or even all firms,[5] though in general they would leave it to the market to decide.

However, some form of long-term compensation will likely become mandatory for banks and other institutions deemed systemically important, both in the United States[6] and abroad.[7] While normally U.S. law leaves

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1   *See, e.g.*, Lucian Bebchuk & Jesse Fried, Pay Without Performance: The Unfulfilled Promise of Executive Compensation (2004).

2   *See Compensation Structure and Systemic Risk, Committee on Financial Services: Hearing on H.R. 111-42 Before the H. Comm. of Financial Services*, 111th Cong. (June 11, 2009) (written testimony of Lucian Bebchuk), *available at* http://www. law.harvard.edu/faculty/bebchuk/Policy/FSC-written-testimony-June-11-09.pdf [hereinafter *Compensation Structure and Systemic Risk Hearing*]; Lucian Bebchuk & Jesse Fried, *Paying for Long Term Performance*, 158 U. Pa. L. Rev. 1915 (2010); Lucian A. Bebchuk & Holger Spamann, *Regulating Bankers' Pay*, 98 Geo. L.J. 247 (2010); Sanjai Bhagat & Roberta Romano, *Reforming Executive Compensation: Focusing and Committing to the Long-Term*, 26 Yale J. Reg. 359 (2009).

3   *Compensation Structure and Systemic Risk Hearing*, *supra* note 2; Bebchuk & Fried, *supra* note 2.

4   Bhagat & Romano, *supra* note 2.

5   *E.g.*, *id.*

6   *See* Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, Pub. L. No. 111-203, *available at* http://www.gpo.gov/fdsys/pkg/PLAW-111publ203/ content-detail.html [hereinafter Dodd-Frank Act] (Congress requiring that
    the appropriate Federal regulators shall jointly prescribe regulations or guidelines that prohibit any types of incentive-based payment arrangement, or any feature of any such arrangement, that the regulators determine encourages inappropriate risks by covered financial institutions — (1) by providing an executive officer, employee, director, or principal shareholder of the covered financial institution with excessive compensation, fees, or benefits; or (2) that could lead to material financial loss to the covered financial institution);
    Guidance on Sound Incentive Compensation Policies, 74 Fed. Reg. 55227, Docket No. OP-1374 (proposed Oct. 27, 2009) (specifically stating the Federal Reserve's "expectation" that banks will utilize long-term compensation methods, including deferral).

7   *See, e.g.*, Fin. Servs. Auth., Reforming Remuneration Practices in Financial

compensation matters to shareholders, the financial crisis made clear that, whether wisely or not, the government will intervene to backstop institutions it deems systemically important. The U.S. government has, in effect, become a significant stakeholder in the fortunes of banks, securities firms, and other financial intermediaries, which militates toward some government control over the way in which those firms are run. While it is not clear what form final rules in the United States will take or how far-reaching their scope will be, given recent moves to large swaths of the capital markets, such as hedge funds and private equity, these compensation mandates could potentially touch much of the financial services industry. The Dodd-Frank Act, for instance, provides broadly that "Federal regulators shall . . . prohibit any types of incentive-based pay . . . that encourages inappropriate risks . . . ."[8] Under the aegis of this and other sections of Dodd-Frank, the federal regulators have begun to act: The Federal Reserve has stated its expectation that banks will use long-term compensation methods;[9] the Federal Deposit Insurance Corporation (FDIC) has instituted two-year pay clawbacks;[10] and the Security and Exchange Commission (SEC) is proposing or has enacted rules that effectively require clawbacks,[11] mandate long-term compensation for certain investment advisers,[12] and require enhanced disclosure regarding risks posed by compensation policies.[13] Mandated long-term compensation appears to be the regulatory measure of choice for protecting the government's new stakeholder position.

SERVICES app. 1 (2009), *available at* http://www.fsa.gov.uk/pubs/policy/ps09_15. pdf (U.K.).

8   Dodd-Frank Act, § 956.

9   Guidance on Sound Incentive Compensation Policies, *supra* note 6.

10   *See* Federal Deposit Insurance Corporation Rule 380.7, 12 C.F.R. § 380.7, *available at* http://www.fdic.gov/regulations/laws/rules/2000-9400. html#fdic2000part380.7.

11   This rule proposal is slated for the first half of 2012, *see Implementing Dodd-Frank Wall Street Reform and Consumer Protection Act — Upcoming Activity*, SEC, http://www.sec.gov/spotlight/dodd-frank/dfactivity-upcoming. shtml#11-12-11 (last visited January 1, 2012).

12   *See* U.S. SEC. & EXCH. COMM'N, INCENTIVE-BASED COMPENSATION ARRANGEMENTS, *available at* http://www.sec.gov/rules/proposed/2011/34-64140.pdf (codified at 17 C.F.R. pt. 248).

13   *See* U.S. SEC. & EXCH. COMM'N, PROXY DISCLOSURE ENHANCEMENTS, *available at* http://www.sec.gov/rules/final/2009/33-9089.pdf (codified at 17 C.F.R. pts. 229, 239, 240, 249, 274). This rule, though very much in the spirit of the Dodd Frank reforms, is not actually required by the Dodd-Frank Act.

But these mandates are, upon reflection, problematic. They do, after all, rely upon a pair of controversial assumptions. First, in direct contrast to the mainstream research in financial economics, these reforms are based on the premise that short-term prices are not, in a sense, good indicators of future stock prices. Rather, the market is so readily fooled that short-term prices are subject to ongoing managerial manipulation — such as earnings management, excessive risk, or even fraud — such that only long-term (however defined) prices should be used as a yardstick for executive incentives. Second, those who set executive pay — shareholders via their boards of directors — cannot themselves be trusted to set pay standards efficiently, due to some combination of powerlessness, ignorance, or bad incentives.

Even taking these radically anti-market assumptions to heart, are these long-term compensation schemes a good idea? Will they do what their advocates promise? And might there be good reasons why firms and shareholders have not adopted such schemes on their own? In this Article, I address these questions. In short, while long-term compensation has the salutary benefit of allowing for possible *ex post* verification or observation of a manager's effort and behavior, such benefit will be limited in scope under all but the most extreme of the plans (e.g., Bhagat and Romano's restriction of equity until after retirement[14]). And the more extreme the focus on long-term pay, the more problems are likely to crop up: Managers who bear private costs of effort or disclosure become less likely to behave optimally the more remote and uncertain a private benefit is, while shareholders are effectively forced to forgo useful information contained in short-term results when determining how to compensate, retain, or let go their managers.

Part I describes the main facets of these long-term compensation plans designed to limit risk and misbehavior. Part II explores some problems related to these plans. The last Part concludes.

I. What Is Being Proposed? And Why?

A. The Proposals

There are three main characteristics of the long-term compensation reforms.

1. Restricted Equity Grants

Bebchuk and Fried would require firms to restrict equity grants for a period of years,[15] while Bhagat and Romano would restrict equity grants until

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14   Bhagat & Romano, *supra* note 2.
15   Bebchuk & Fried, *supra* note 2.

retirement.[16] For example, a manager in year one will receive a share of stock, with the restriction that he may not cash it out, hedge it, or otherwise unwind it for five years. The intuition for such a restriction is straightforward: If managers tend to be too shortsighted due to short-term price incentives, then making their compensation longer term will lead managers to take a longer-term view as well. For instance, a manager who receives as his compensation only a share of stock that may not be sold for five years will ostensibly act to maximize the stock price five years hence.

2. Clawbacks

Bebchuk and Fried, as well as Bebchuk and Spamann, would require that bonus compensation be held in trust so that subsequent bad performance may be netted out of any payment given to the manager.[17] For example, an executive receiving a bonus of $100,000 for a stock price rise would have that money held in trust; if the stock price falls within a specified period of time (say, three years), the executive forfeits some or all of that bonus-in-trust. This is intended to fix the option-like characteristics of current compensation packages: If firms have a good year, managers make large bonuses, while in bad years, managers' bonuses bottom out at zero. Under such an arrangement, a manager has an incentive to boost performance in one year even if it comes at the expense of performance in other years, such as by undertaking a project that the manager knows to have a net negative expected value, but which may be favorably perceived by the marketplace in the short term.

3. Divesting of Grants upon Discovery of Fraud/Excessive Risk

Complementing both the restricted equity and clawback elements of these long-term compensation plans is the notion of divesting: If opportunistic managerial behavior is discovered later on by shareholders, regulators, or courts, then the restricted stock or held-in-trust bonuses above will be divested from the executive. For example, if it turns out that an executive reaped bonus and stock compensation because of fraudulently inflated results, the executive forfeits both his stock and bonus. Assuming misbehavior is *ex post* verifiable, this mechanism will, *ex ante*, deter managers from engaging in misbehavior in the first place.

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16   Bhagat & Romano, *supra* note 2.
17   Bebchuk & Fried, *supra* note 2; Bebchuk & Spamann, *supra* note 2.

B. How Are These Proposals Intended to Work?

According to their proponents, these long-term compensation schemes will deter two types of opportunistic behavior: excessive risk-taking and opportunistic behavior that temporarily boosts stock price. The way they function is by exposing the executive to more risk, and by allowing time for the executive's performance to be verified in the future. While not discussed in the proposals themselves, in order for these measures to work, two assumptions must hold: The executive must be risk-averse (taking into account all other compensation), and bad behavior must be verifiable after the fact.

1. Increased Risk Exposure

Deferring the executive's stock grants forces him to take not just a longer-term view of the firm, but also subjects him to more risk. If stock prices follow a random walk with a standard deviation of α (a typical model of securities prices), then deferral of the stock's exercise by n years increases the risk he faces from α to $\sqrt{n}\sigma$. If the executive is risk-averse (at least above some point of expected returns), then this will serve to reduce the overall risk level that the manager will choose. One caveat to this approach, however, is that the executive must indeed be risk-averse, even taking into account his other compensation (for example, an executive who already has a large amount of underwater options will be effectively risk-seeking). For executives who are not risk-averse, simply increasing the risk they bear will deter additional risk-taking.

Similarly, clawbacks may, in cases where compensation is set inefficiently, directly increase the amount of downside risk that an executive faces. For instance, if an executive's pay package includes "bonuses" that are virtually guaranteed, imposing a clawback on such bonuses increases the risk that she bears. Again, risk aversion is necessary for this to have its desired effect: Since the expected value of the wage cannot change (assuming it is set by market forces), a risk-neutral manager will be indifferent between clawback and non-clawback structures.

2. Ex Post Verification

Divesting of deferred compensation provides a means of deterring opportunistic behavior that may not be observed immediately. For instance, if an executive can falsely report higher earnings, which will not be discovered until sometime later, deferring the grant or bonus may be helpful, as that gives the hidden information time to be impounded into price. Similarly, clawbacks and divesting help to eliminate gains from false performance, since in the event of reversals, those gains will be forfeited. In general, the greater the period

of deferral and the larger the amount subject to forfeiture, the less likely the executive is to engage in short-term price manipulations.

While the concept of *ex post* verification is intuitively appealing, it is not entirely uncontroversial. If markets observe executive pay packages, then the rationally expected level of bad behavior will, in fact, be priced in *ex ante*, and create incentives to engineer a better equilibrium outcome. For example, an executive whose compensation induces price manipulation may see little overall gain from that manipulation, since the market expects it; instead, managers and shareholders may jointly prefer to move to compensation arrangements that maximize *ex ante* stock price by incentivizing the manager not to cheat. An additional problem is the *ex post* verification process itself. Making compensation contingent on, for instance, fraud litigation outcomes is of dubious efficacy: An enormous legal literature questions the value and accuracy of such litigation, as it, among other things, takes years to conclude and is subject to opportunistic settlement. On the other hand, allowing the firm itself to conclude whether bad behavior has occurred opens up the possibility of opportunism on the firm's part.

II. SOME PROBLEMS WITH THE LONG-TERM COMPENSATION PROPOSALS

There are certainly potential benefits to be had from a focus on long-term compensation. Executives who are invested for the long term will tend to focus on stock price in the long term — which, if long-term stock price is fundamentally different from short-term stock price, may be a good thing. Executives who are subject to downside for poor performance (or performance reversals following good performance) will refrain from manipulation of short-term prices that come at the expense of long-term value. The potential revocation of restricted stock grants and bonus compensation can deter malfeasance that is likely to be discovered only after the passage of time.

However, there are some problems with these approaches. First, it is not clear how different, in functional terms, these proposals would be from the status quo. Incentives in restricted and non-restricted plans are largely identical unless the term of restriction is significant compared to the manager's tenure. Only in the most extreme restricted stock plans, such as Bhagat and Romano's "hold until retirement" scheme,[18] are executive incentives almost entirely different. As for the clawback proposal, the likely effect is simply to shift compensation from bonuses into salaries. In a rational

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18   Bhagat & Romano, *supra* note 2.

expectations model, executive compensation is constrained by a market wage (i.e., an individual rationality constraint) and a necessary performance-based differential to compel effort (i.e., an incentive compatibility constraint); given these constraints, a mandatory clawback requirement leads to larger salaries that offset the negative bonuses that accrue for poor performance. Put another way, so long as the market for executive compensation is doing a reasonably good job, all that mandatory clawbacks accomplish is to shift compensation from bonus into salary.

Second, to the extent that long-term plans are substantively different, the difference is not always good. Executive risk aversion makes deferred and contingent compensation generally more costly. While deferred compensation may reduce or eliminate some forms of opportunism, executives will still have incentives to act opportunistically in other ways: They may delay projects or disclosures to coincide more closely with the cashing out of restricted stock, or they may undertake inefficient measures to reduce the firm's overall risk. Additionally, artificially restricting compensation factors to long-term results loses potentially valuable information contained in short-term results.

A. Long-Term Restricted Equity

While long-term compensation may be effective in some circumstances to remedy managerial opportunism, there is a fairly obvious tradeoff: By removing compensation from the here and now, incentives to do appropriate things in the immediate term are lessened. I explore those problems in this Section.

1. *How Great Is the Difference Between Restricted and Non-Restricted Stock Plans?*

Under the proposal of Bebchuk and Fried,[19] there is a potentially extended period of time where the incentives of the manager will not in fact be any different than in the non-deferred case. Once the initial deferral period has passed, the manager will be cashing out some amount of stock each year, just as in a non-deferred plan. Unless the period of deferral is relatively great, incentives will remain largely the same.

Consider the extent to which long-term restricted compensation actually changes a manager's incentive structure. Suppose, for example, that the manager of a firm has a five-year tenure, after which she retires. In addition to paying a wage *w*, a firm may either grant a share of stock to the manager at the end of each year (non-restricted equity), or else grant three-year restricted

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19   Bebchuk & Fried, *supra* note 2.

stock. That is, the non-restricted manager simply takes home a share of stock at the end of each year, while the restricted manager takes home nothing for the first three years, then a share of stock at the end of year four and thereafter, until three years after her retirement.[20] The following diagram illustrates the flow of liquid equity compensation to the manager in each year under each plan.

Figure 1: Comparison of Manager Incentives in Restricted vs. Non-restricted Compensation Plans
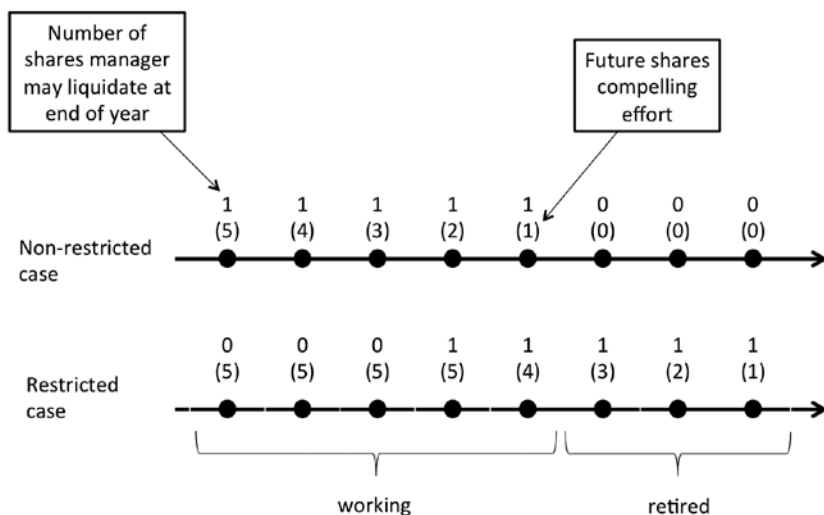
As shown by the top row of numbers in each timeline, the restricted manager may sell one share of stock in years 4, 5, 6, 7, and 8. The non-restricted manager may sell one share of stock in years 1, 2, 3, 4, and 5. The number in parentheses gives the number of shares of stock that the manager expects to be able to cash out in the future. It is this number — what the executive expects to get and cash out down the line — that compels effort in the current period.

As it turns out, there is a stretch of time in both the deferred and non-deferred cases in which the manager's incentives are the same. Under the non-restricted compensation scheme, in period 1, the manager looks forward to five shares of equity compensation. Whatever benefit the manager is able to

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20   Such stock will need to be grossed up for the manager's discount rate to render it an equivalent value, but for ease of exposition I will assume the manager has a discount rate of zero.

bestow upon the firm will be partially appropriated by her via her five shares of stock. Suppose the manager may generate an asset with a value of *A* per share, which increases stock price by *A*. Rationally, then, she will exert effort (or refrain from manipulation) if the cost of effort (or the cost of refraining) is less than *5A*. Denoting the cost of effort (or refraining) as *C*, so long as *C < 5A*, the manager will behave well.

Consider next the restricted equity case. In period 4, the manager looks forward to five years of equity compensation. Again, the value of each share will be increased by *A* should the manager exert effort and, exactly as in the non-deferred case, the manager will choose to exert effort in period 4 if *5A > C*. Thus, incentives across the two schemes are partially the same, although in different years. Additionally, it is evident that year 2 in the non-restricted case is also equivalent to year 5 in the restricted case. There are, in fact, two years where the manager's incentives are unchanged between the restricted and non-restricted cases.

There are, however, periods of time in which the incentives differ, and the restricted scheme incentives are sometimes (but not always) an improvement. Consider again the example in Figure 1 above. In the last year of employment — year 5 — under a non-restricted scheme, the executive will receive only one share of stock in the future. Thus she will choose to exert effort in year 5 only if *C < A*. There is no comparable incentive in the deferred case, where the manager in her last year of employment looks forward to four shares of stock, and hence will undertake effort so long as *C < 4A*. Incentives toward the end of the manager's tenure are thus different and, specifically, managers are better incentivized at the end of their tenure under the restricted equity scheme.

On the flip side, though, at the beginning of the manager's employment, she receives no saleable stock for the first three years, which gives potentially (though not necessarily, as in the risk-neutral case) different and worse incentives than in the non-restricted case. If there is any uncertainty about the value of the asset and if the manager is risk-averse, restricted grants in the beginning periods have a negative incentive effect: Risk averse managers are unwilling to undertake costly effort given uncertain outcomes. This represents a distinct cost that must be taken into account against the salutary effects of deferred compensation at the end of the manager's tenure. At the same time, those salutary effects of deferring compensation into retirement are lessened: A risk-averse manager may be unwilling to exert effort in the current period in order to receive an uncertain benefit sometime in the future. So, for example, where risk aversion is so extreme that equity grants outside the current period are completely discounted in deciding whether to undertake effort, the non-restricted scheme is superior to the restricted scheme. More generally, the

greater the degree of risk aversion and uncertainty, the shorter any restriction period should be. I explore problems of uncertainty and risk aversion in more detail in the next Subsection.

2. Risk Aversion and Undesirable Risk-Reduction

Consider the example in Figure 1 where the manager is not risk-averse. On the simplifying assumption of a zero discount rate (meaning that the manager is indifferent to the timing of her payment), the manager is indifferent between receiving her equity share now or at any point in the future. For example, promising to pay the manager a share of equity in ten years would be fine, and potentially optimal, if it is the case that the manager's effort will not be reflected in the price of the stock for that period of time. In such a state of the world, the Bhagat and Romano scheme of deferral until after retirement[21] is preferable.

However, once the manager is risk-averse and there is uncertainty, difficulties arise. To model uncertainty, assume the following: By exerting effort at cost C at time t, the manager creates an asset with a value of A.[22] While the value of the asset may be known (relatively speaking, at least) at the time of its creation, the market's valuation of that asset may change over time. Specifically, suppose that the expected value of the asset follows a random walk over time (a popular model of securities prices). This means that while the market-reflected value of the equity compensation in year t is A, in year $t + n$ that value is distributed normally with a mean of A and standard deviation of $\sigma\sqrt{n}$, where σ is the one-year standard deviation of the value of the asset. Thus, even though there is no uncertainty in this model about whether the manager has created the asset, there is still uncertainty about the future value of that asset.

This means that a manager receiving a share of equity in the current year would require less in terms of equity compensation in order to be willing to exert effort than in the case where compensation is deferred. The magnitude of this problem depends upon the manager's level of risk aversion. One partial solution may be to pay the manager more: If risky stock is less valuable to the manager, then paying more stock may make up the incentive problem. This is, however, more expensive for shareholders and leads to higher overall levels of executive compensation. Furthermore, it is not a complete solution to all forms of risk aversion.

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21   Bhagat & Romano, *supra* note 2.
22   The point would still stand even if the asset is drawn from a distribution with mean A: The subsequent random walk still subjects the manager to increased risk the longer the manager must wait before liquidating.

One problem that arises immediately is that executives, when faced with a riskier compensation profile, may seek to limit the firm's risk in ways that are inefficient. While limiting risk is inarguably part of the purpose of these proposed reforms, managers may either choose to minimize risks that are not a problem or do so in ways that are socially undesirable. For instance, if the goal is to limit systemic risk, such a goal may fail if the manager chooses instead to reduce the firm's idiosyncratic risk by firm-level diversification, while still maintaining the same systemic bets. In fact, a risk-averse manager would be willing to forgo substantial firm value in order to receive such a reduction in risk.

A more subtle problem arises from the fact that managers may change their timing of effort in order to minimize their risk and maximize their expected utility of their future stock awards. Suppose, for instance, that the manager of a firm has three-year deferred compensation. In year 1, the manager faces a choice: undertake a project now and generate expected value of A or, at some cost to the firm, delay the project for a year and generate expected value of $A - \varepsilon$ in the next period. Why would the manager do this? Because by moving the project a year into the future, less time would pass between the realization of the project and the cashing out of her equity grants. For example, as shown in Figure 2, if the manager delays the production of an asset from year 0 to year 1, she reduces the standard deviation of her equity grant in year 2 from $\sigma\sqrt{2}$ to σ. While she will see the expected value of her equity grant decline by ε, she may well find this tradeoff to be worth it if she is sufficiently risk-averse. Note that in such a case, merely increasing the amount of stock compensation granted will not necessarily overcome the incentive problem: Awarding a multiple k shares of stock increases the manager's loss to $k\varepsilon$, but also increases the standard deviation by the same multiple to $k\sigma\sqrt{2}$. Depending upon the manager's particular form of risk aversion, this could either improve or exacerbate her negative incentives.

3. Limiting Disclosure

If managers are paid exclusively in long-term compensation, they have little, if any, incentive to make disclosures about the firm's health in the short term. This has negative effects upon the liquidity of the firm's shares, and ultimately would increase a firm's *ex ante* cost of capital.

Consider a manager who learns a piece of positive but uncertain information in year 1: The firm has acquired a project, for the sake of concreteness, that is distributed $N(v,\sigma^2)$ with $v,\sigma > 0$. She has the choice of disclosing it then, or waiting until year 2, at which time she is able to sell her restricted share of stock. Furthermore, suppose that the manager will know more about the

Figure 2: Limiting the Manager's Risk by Waiting
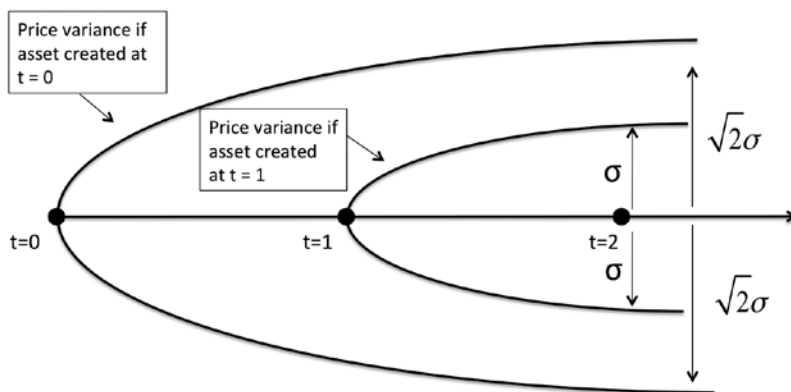
value of the project in year 2: The project's variance declines by $\delta > 0$. What would she choose to do?

In a perfect world, absent concerns of secrecy or competition, the manager would disclose immediately. This has the salutary effects of lowering the firm's cost of capital (should it be seeking to raise capital) in year 1 and of lowering liquidity costs for the firm's shareholders by reducing uncertainty and incentives to engage in costly informational search.

However, the manager has little reason to disclose in year 1. There is no upside for her in doing so, since her stock sale cannot occur until year 2. She would, on those facts, be indifferent between immediate and delayed disclosure. Furthermore, she faces costs from immediate disclosure. The securities laws impose personal liability on managers who make false disclosures, and forward looking statements — expectations regarding future value — are considered particularly risky in this regard. If findings of liability are prone to error (a generally accepted assumption), this creates a very real risk of liability for the manager with respect to telling the truth in year 1. She is better off waiting until year 2, when she has better information — lowering her personal liability — and some economic interest compelling her to make the disclosure.

4. Loss of Information
There is a potential loss of efficiency in ignoring or suppressing short-term results. The reason is that there may be cases in which short-term results

reflect additional information about the efforts and behavior of managers that
is not picked up by the long-term stock price.

Imagine the following scenario. In year 1, the manager undertakes effort
to create an asset that has an uncertain but positive expected value; in year 2
the asset may generate cash flows of $v \in \{0,A\}$ with respective probabilities
$\{1-p,p\}$.[23] At the end of year 2, the firm pays a dividend and winds up. The
likelihood of generating an asset in year 1 depends upon whether the manager
is good or bad; for the sake of simplicity, suppose that good managers always
generate the asset, while bad managers never do. Figure 3 illustrates the
identical returns of an unlucky good manager and a bad manager.

Figure 3: Should We Pay These Two CEOs the Same?
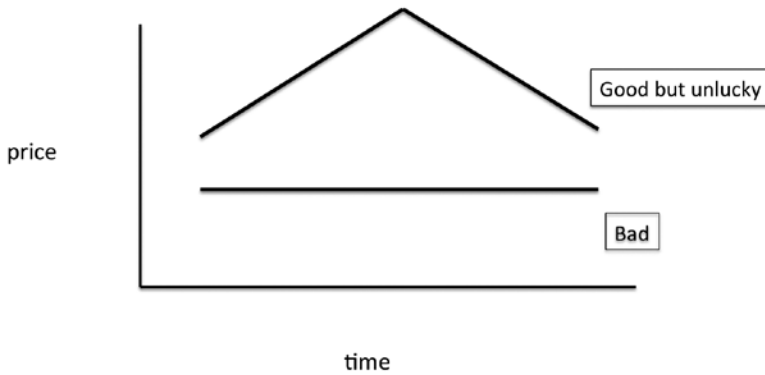
How should shareholders compensate the manager, and based on what
metric? It is apparent that the year 1 stock price is perfectly revealing of the
manager's type: Good managers always generate a year-1 stock price of pA,
while bad managers always generate a stock price of 0. However, year-2 stock
price is not perfectly revealing: Both good and bad managers can result in a
year-2 stock price, as well as average returns, of zero. While a risk-neutral
manager can simply be awarded k shares of restricted stock (i.e., stock that
is exercisable only at the conclusion of year 2) such that kpA equals her
market wage, a risk-averse manager will require an additional amount of
compensation ε to compensate her for the risk that she bears. That is, the fact

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23   While I use a binary variable for ease of exposition, there is no reason why one
      could not use a random walk on the asset value to generate the same result —
      there would still be cases in which short-term results are revealing and long-term
      results are not.

that managers are risk-averse in general makes it costly to shareholders to compensate the manager for risk that the shareholders themselves (presumably diversified and risk-neutral) could more efficiently bear. Here, the risk takes the form of having to hold the stock through year 2, instead of cashing out in year 1 for the sure thing of kpA.

An additional complication is whether the manager's contract is to be renewed at the end of her term. Clearly, in the example above, shareholders would be wise to retain a manager (or to induce her to remain) who generates the year-1 stock price of pA, even if the price subsequently declined to 0 in year 2. Such a manager is, without doubt, of good type. However, it is not clear whether under a mandatory long-term compensation rule this would be allowable. If shareholders are forced to pay based on long-term results, then here the long-term results are no different for good and bad managers.

This is not to say that there is no case to be made for weighting long-term performance more heavily. In the above example, suppose that bad managers can mimic good managers: They can artificially raise the year-1 stock price, only to always have that price increase reversed in year 2. In such a case, period-1 stock price is perfectly unrevealing, and the only information shareholders will have regarding managerial type is in the noisy revelation that takes place in period 2. A less extreme example would be where bad managers may be sometimes unsuccessful in mimicking; in such a case, both year-1 and year-2 stock prices contain useful information and should be incorporated into the manager's compensation contract. What one can say, though, is that as a general matter, mandating zero weight upon short-term results is a bad idea.

A somewhat different problem arises where a firm may do poorly in the first year, a species of the well-known "gambling for resurrection" problem. If a manager is subject to some sort of return averaging over her tenure, this may give her bad incentives to increase risk. For instance, suppose the manager receives an option priced at the money as of the start of her employment that is exercisable only at the end of year 2; this rewards the manager based on the total return of the firm during that time, from the beginning of year 1 to the end of year 2. If the price declines in year 1 — whether or not it is the manager's fault — her option is underwater, and she now has the incentive to "gamble for resurrection." She may seek to increase the firm's risk, even at the expense of some expected value.[24] Again, shareholders would be better

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24   This is precisely why, in some cases, it may be in the shareholders' best interests to reset managers' option values. In the hedge fund industry, as another example, funds that are well under their "high water marks" may roll up and begin a new fund not subject to the high water mark.

off taking the year-1 stock price into account, rather than tying the manager's compensation plan exclusively to year 2. In this particular case, the change during year 1 may reveal something negative about the manager's effort or competence that may be masked by the assumption of additional risk in year 2, and the (again, short-term) change from year 1 to 2 may reveal something else about the level of risk that the manager has taken on.

In sum, short-term stock price contains additional information. While the way in which shareholders should use this information varies with the particulars of the context, what is certain is that there is a loss of compensation efficiency if such information must be disregarded.

B. Clawbacks

A prominent aspect of several of the current proposals is the mandatory clawback feature with regard to bonuses.[25] This is meant to deter opportunistic behavior by allowing the firm to subsequently reclaim compensation upon the discovery of malfeasance. For instance, if an executive overstates revenues in one period, the clawback feature would require her to give up any performance bonus when and if that fraud is ultimately discovered. Furthermore, clawbacks may be based not just on extreme malfeasance, such as fraud, but rather upon "reversal" of the firm's fortunes or other cases where the reasons for paying the bonus in the first place no longer hold up.

While sensitivity of pay to performance is a good idea in most cases, a mandatory clawback rule poses at least two distinct problems. The first springs from the discretionary nature of what a firm's compensation committee might count as a success for which a bonus should be granted, and a failure for which a bonus should be taken back. The definitions of success and failure could be formulated, for instance, such that the threat of clawback is largely illusory. Second, a clawback system may end up not looking much different than a non-clawback system: Poor performance simply ends up coming out of the next year's performance-based bonus under a non-clawback scheme. One potential pitfall with a mandatory clawback scheme, however, is that it may render bonus compensation infeasible given incentive compatibility and individual rationality constraints.

1. Defining Success and Failure for Clawbacks
In a typical optimal compensation problem, shareholders cannot directly observe or contract for the manager's effort. Rather, the manager's effort can be inferred *ex post* through the firm's subsequent returns, although not

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25   *See, e.g.*, Lucian Bebchuk, *How to Fix Bankers' Pay*, 139 Daedalus 52 (2010).

necessarily with certainty. A standard solution, then, is to award the manager "bonus" compensation that is contingent upon a good outcome. In order to induce the manager to exert effort and otherwise behave well, the manager's expected gain from doing so must exceed the costs of exerting effort and refraining from misbehavior. What that means is that so long as the spread between the manager's reward for success and punishment for failure is sufficiently great, it does not matter what absolute level the bonus and punishment are set at, or what salary the manager receives in addition. The additional consideration of limited liability tends to militate for a solution in which the manager's overall compensation cannot be negative, while a manager's risk aversion makes it overall less expensive for shareholders to pay a significant portion of the manager's compensation in salary.

The mandatory clawback proposal would require, essentially, that a negative bonus or penalty be assessed against a manager such that the loss from a subsequent failure will cancel out the gains from a previous success. Clawbacks or their equivalents exist voluntarily in many settings, such as hedge funds and private equity (whose customary twenty percent incentive compensation, or "carry," is subject to "high water marks" for leading losses and clawbacks for subsequent losses), as well as in the mortgage origination business (where mortgage purchasers retain the right to put back the mortgage to the originator in the case of early default or the discovery of fraud). In such cases, the parties have decided to impose clawbacks based on certain well-defined events (portfolio value declines and fraud/default, respectively), and this is perhaps why it makes sense in these cases.

As a general one-size-fits-all approach, however, things are not so clear. What defines success in an executive's role? If we condition bonuses specifically upon a rise in stock price, this ignores the case where a company may do well simply to avoid losing any more money; for example, given a bleak outlook, a one percent decline may well be what defines success. If success and failure are hard to define such that regulators or legislators cannot do it, there is little to keep a compensation committee that chafes at pay mandates from defining success and failure in such a way that bonuses again become non-contingent, taking the teeth out of the mandatory clawback system.

2. The Equivalence of Clawback and Non-Clawback Systems

At the end of the day, a system of mandatory clawbacks — negative bonuses in the event of performance "reversal" — is likely to resemble a system of large bonuses for success and zero bonuses for failure — i.e., a non-clawback bonus system. The reason is that under such a system, salary components of compensation will have to rise to make up for the potential of a negative

bonus. If, in order to guarantee solvency to repay the negative bonus, the firm must hold part of an executive's salary in trust until bonus-time, the end effect is exactly the same. It is thus possible that a mandatory clawback requirement will have no effect at all.

For example, consider an executive who receives both a salary and a performance-based bonus in two years. Suppose that the executive has three choices in the first year: costly effort, no effort, or no effort plus fake performance (which is subsequently reversed in the second year). If the market wage for an effort-exerting executive is ten dollars per year, and the differential in performance bonus required to ensure productive effort is four dollars, then we can formulate any number of efficient compensation schemes. For instance, the firm could pay the executive a base salary of six dollars and a bonus of four dollars in each year, the latter contingent upon good results. A cheating executive would receive ten dollars in year 1, and six dollars in year 2, meaning that he would prefer, *ex ante*, to have exerted effort in order to receive ten dollars in each year.

Alternatively, the firm could impose a clawback structure: The executive receives a salary of eight dollars in each year, along with a two-dollar bonus for good performance and a two-dollar penalty for a reversal of good performance. As before, a cheating executive would receive ten dollars in year 1 and six dollars in year 2, making good behavior *ex ante* preferable. What this example shows is that there is no difference between properly constructed clawback and non-clawback compensation systems.

Furthermore, one can show that clawbacks may be subject to abuse as well: Suppose the executive receives nine dollars as salary with a one-dollar bonus subject to clawback. In such a case, the executive will choose to cheat: He would make ten dollars in year 1 and eight dollars in year 2, and since by construction a differential of four dollars is required to ensure incentive compatibility, cheating is an equilibrium outcome. Hence, a clawback system is not necessarily efficient, and is unlikely to be better than a properly constructed non-clawback system across multiple periods.

More formally, consider a simple model of performance-based compensation. A representative shareholder wishes to induce optimal effort on the part of a risk-neutral manager. To do so, the shareholder chooses the manager's salary w_t and bonus payment $B(s)$. The bonus depends upon the state of the world, $s \in \{S,F\}$, with the possible states of the world being success S (meaning the firm makes a lot of money) and failure (meaning the firm makes little or no money). The firm's cash flows are $v(s), v(S) > v(F)$. The probabilities of success $\Pr(S)$ and failure $\Pr(F)$ depend upon the effort of the manager; the likelihood of success is higher if the manager exerts effort $\varepsilon \in \{e,0\}$, where $\Pr(S \mid e) > \Pr(S \mid 0)$. Effort has a cost to the manager

of $c(e)$, while not exerting effort costs nothing. Hence a constraint on the shareholder's optimal choice of compensation is the manager's incentive compatibility (IC) constraint: If the shareholder desires that the manager undertake effort, the expected value of the salary and bonus that the manager receives for success must exceed the expected value of the salary and bonus that the manager receives for failure. Assume that the expected gain from effort exceeds its cost; in such a case, effort is always efficient and therefore the shareholder's maximization problem must satisfy the IC constraint. An additional constraint is that the expected value of the manager's compensation must equal or exceed her outside option or market wage w_m; this is known as the manager's individual rationality (IR) constraint.

Formally, we can express the shareholder's objective function (Obj) as a constrained maximization program:

Obj: $\max_{w_t, B_s} E[n^* v(s) - w_t - E[B(s)]], \text{subject to}$

IR: $w_t + E[B(s)] \geq w_m$

IC: $w_t + E[B(s) \mid e] - c(e) \geq w_t + E[B(s) \mid 0] - c(0)$

From IC, $E[B(s) \mid e] - E[B(s) \mid 0] \geq c(e)$, which means that

$\Pr(S \mid e)B(S) - \Pr(S \mid 0)B(S) + \Pr(F \mid e)B(F) - \Pr(F \mid 0)B(F) =$

$\Pr(S \mid e)B(S) - \Pr(S \mid 0)B(S) + (1 - \Pr(S \mid e))B(F) - (1 - \Pr(S \mid 0))B(F) \geq c(e),$

which rearranging yields $\Delta(B(S) - B(F)) \geq c(e)$ where $\Delta \equiv \Pr(S \mid e) - P(S \mid 0)$.

This pins down the required differential between bonus payments as

IC: $B(S) - B(F) \geq c(e) / \Delta$

We can rewrite IR as $w_t + \Pr(S) * B(S) + (1 - \Pr(S))B(F) = w_m$ (it must be binding, otherwise shareholders could be better off under Obj by paying the manager less). So long as the IC constraint is met, we can rewrite the probabilities as conditional given effort:

IR: $w_t = w_m - \Pr(S \mid e)B(S) - (1 - \Pr(S \mid e))B(F)$

This gives a system of two equations and three choice variables, which allows for an infinite number of solutions.

A typical constraint that refines this solution set is what one might term the manager's limited liability constraint: that is, payments to the manager

must always be non-negative. We can formalize this limited liability (LL) constraint as

LL: $w_t = B(s) \geq 0, \forall s \in \{S,F\}$

With the LL constraint, the solution that minimizes payments to the manager in the event of failure is:

$B(F) = 0$

$B(S) = c(e) / \Delta$

$w_t = w_m - \Pr(S \mid e)c(e) / \Delta$

Bebchuk would impose an alternative constraint: Bonus compensation will be "clawed back" in the event of a reversal.[26] One can take this to mean that there is, in effect, a negative bonus for poor performance or failure, and furthermore that this negative bonus for failure must counterbalance the positive bonus for success. Formally, this clawback constraint (CB) is

CB: $B(S) = -B(F)$

Combining CB with IC yields a unique solution for the manager's bonus structure:

$B(S) = c(e) / 2\Delta = -B(F)$

Plugging this into the IR constraint yields a unique solution for the manager's salary component:

$w_t = w_m + B(S)(1 - 2\Pr(S \mid e))$

One interesting thing about this solution is that if $\Pr(S \mid e) < 1/2$, then the expected value of the bonus is actually negative. In such a case, $w_t > w_m$ in order to make up the difference; that is, the executive will receive a salary that is actually in excess of the market wage. Furthermore, note that, by construction of the clawback constraint CB, in the event of a failure, the manager will have to pay the negative bonus $B(F)$ out of her salary. In order to guarantee the solvency of the manager to repay the clawback, it is not inconceivable that an amount $- B(F)$ of her salary w_t would have to be held in trust. This ends up looking like a quasi-salary of $\hat{w} = w_t + B(F)$ (recall that

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$B(F) < 0$) and a bonus structure of $\hat{B}(S) = B(S) - B(F)$ and $\hat{B}(F) = 0$. In any event, assuming solvency of the manager to repay, it can be shown through substitution that this structure is in effect exactly the same structure as in the limited liability (LL) case. Very little, if anything, has changed under the mandatory clawback rule.

There is, however, a potential pitfall in the implementation of such a clawback rule. If the rule is worded as something along the lines of "any contingent compensation must be matched by a symmetrical clawback in the event of 'failure,'" an outsider would view the quasi-bonus $\hat{B}(S)$ as the actual bonus since payment of this amount is, in fact, contingent on success, when formally it is a payment of deferred salary as well as actual bonus. Maintaining the clawback constraint, from this outsider's perspective, would require forcing a symmetrical clawback of $-\hat{B}(S) < B(F)$ in the event of failure. This in turn requires the salary w_t to be higher and an even greater amount withheld to ensure solvency, which again would make the bonus structure appear greater than it really is. And so on.

CONCLUSION

There are undoubtedly benefits to various forms of long-term compensation: Deferred compensation can limit excessive risk-taking, the possibility of divesting can deter opportunistic actions that may not be discovered until later, and clawbacks may increase sensitivity to performance where pay is set inefficiently. However, this Article has shown that some of the mandated reforms may not be all that different than present-day practices, and that, to the extent that these reforms do create substantive differences, they are not necessarily preferable. Shareholders and firms may, indeed, have good reasons not to focus exclusively on long-term results, and regulators would be unwise to impose such mandatory terms.