

Rethinking “Strength of Incentives” for Executives of Financial Institutions

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The failure of several large financial institutions in 2008 and 2009 has led to a general reassessment of incentive compensation policies at financial institutions. Much public indignation has been directed at the CEOs and other senior managers of now bankrupt or government-rescued institutions who received large sums in the years just prior to the crisis. Both the sheer size of executive compensation and the jarring contrast between massive shareholder losses and enormous executive pay at the same enterprises have been hot political issues. Adding more fuel to the controversy, the last decade saw many well-publicized cases involving very high levels of cumulative executive compensation in companies that produced disappointing cumulative shareholder returns.¹

Of course, controversy over corporate governance and compensation practices is nothing new—and compensation has often been targeted in investigations into the causes of earlier financial debacles. However, the 2008–2009 crisis has been different in that it raised serious questions about compensation issues that many corporate governance specialists thought had been settled—at least in theory. During the 1980s and 1990s, controversies over executive pay packages eventually resulted in an apparent consensus in the U.S. and much of Europe that effective incentive compensation design amounts mainly to aligning the interests of senior executives with those of shareholders. The idea of strong incentives for shareholder value maximization came to be regarded as self-evident, and the stronger the better. Such incentives were generally thought to be those provided by compensation systems that accomplished the greatest “leveraging” of executive pay to the company’s share price.

But the recent crisis has caused many financial markets observers to revisit this assumption. Several respected scholars, including academic lawyers as well as economists, have begun to suggest that strong incentives and close managerial alignment with shareholders of financial institutions are actually part of the problem. Such scholars have argued that excessive equity-based compensation for senior managers of financial institutions is socially undesirable because financial shareholders as a class benefit from shifting risk

to debtholders—while the debtholders themselves lack the incentives to prevent such risk-shifting because of *de facto* or *de jure* government guarantees that effectively support the value of their debt.

What’s more, the recent crisis has caused some finance theorists and practitioners to rethink the effects of managerial incentives on the total enterprise value of large financial institutions. This re-examination has identified and analyzed a number of potential problems with the use of equity-based compensation, including insufficiently long managerial time horizons and inadequate board monitoring of compensation arrangements as well as the temptation for excessive risk-taking provided by “asymmetric” payoff structures in which shareholders have virtually all the upside while debtholders bear most of the downside risk. In an attempt to address such problems, finance and governance scholars have increasingly explored the possible value of aligning managerial interests with those of not only the shareholders, but other important corporate claimants such as debtholders and (in the case of financial institutions) the government or taxpayers.

This article reviews some of the latest thinking about risk and managerial incentives at financial institutions. In the first of three main sections, we show how in financial firms the relative ease of shifting risks from equityholders to debtholders creates special governance challenges and problems in incentive design. These challenges are especially great when firms are near insolvency and when senior management may be tempted to “gamble for resurrection.” In the second section, we review some of the more promising ways of dealing with these challenges, including the use of “bonus banks” and “inside debt”—that is, unsecured unfunded debt obligations of the firm—to compensate financial CEOs, senior executives, and traders. In the third and final part, we identify and evaluate the trade-offs involved with each of these proposals and point out some important elements that other observers seem to have overlooked.

To provide a preview of our main arguments,

- We agree with many observers that the concept of “strength of incentives” needs to reflect a healthy appreciation of downside risk as well as upside reward, and that both

1. See for example, “The Decade’s 25 Top Earners,” *Wall Street Journal* (July 27, 2010). Number 11 on the list of 25 is former Lehman CEO Richard S. Fuld, Jr., who during the 10-year period 2000–2009 earned \$456.7 million, of which \$356.3 million

took the form of gains on options. Over same period, shareholders return on each \$100 of investment was just \$1.09.

senior and subordinated debt may be ideal instruments for establishing that balance. At the same time, we believe that the most senior executives should continue to receive equity-linked compensation *in addition to* significant proportions of “inside debt.”

- Since decision-makers below the highest-level executives of large financial institutions collectively wield enormous power to assume and manage risks, we believe that this “upper-middle” tier of managers deserves special attention. Rather than rewarding these managers with stock or options, we suggest using a combination of uncapped but “held-at-risk” bonuses denominated in subordinated, inside debt as the best way of rewarding effort and competence while controlling opportunities for risk-shifting.

- Although we acknowledge that aligning the interests of executives, shareholders, and other corporate claimants is not a simple matter and that “strong incentives” may have unwanted consequences, we continue to believe in the general desirability of using targeted and balanced incentive pay programs to align the interests of shareholder and very senior executives.

Part One: Analysis of the Problem

Financial institutions, because of their ability to lever up quickly and easily, are particularly vulnerable to conflicts between equityholders and debtholders. These conflicts may make managers with equity-linked compensation rationally risk-seeking as individuals.

Although destructive of value at the level of the entire enterprise, excessive leverage and financial risk have the potential to create value for equity holders and those with claims contingent on equity (such as stock options) of firms in any industry. This increase in value for equity holders represents a transfer from the same firm’s debtholders and other claimants.

In a pioneering 1974 paper, Nobel laureate Robert Merton formally described this transfer of value from debtholders to equityholders. He demonstrated that the limited liability feature of corporations create real option value for equity holders when a corporation is levered.² The common equity of a firm represents a call option on the assets of that firm struck at the face value of the firm’s debt. This option or “volatility” value increases as the value of liabilities approaches the value of the assets—that is, as liquidation value of the firm approaches zero.

In such a situation, the legal status of equityholders has limited the downside risk of loss without limiting the upside return. Consequently, markets usually attribute some option or volatility value to the firm’s equity even if the liquidation

value appears to be zero. But the option value the market attributes to the equity comes at the expense of the same firm’s debtholders. The debtholders have significant downside here, but no more upside because the liquidation value of the firm would just equal the face value of the debt.

Two years later, Michael Jensen and William Meckling made another important contribution to our understanding of this wealth transfer from debtholders to equityholders in their classic article on “agency costs.” They pointed out that CEOs of levered firms were not like outside owners of a firm’s equity because they were able to increase the riskiness of the firm’s assets and liabilities directly in their legal capacities as CEOs. What’s more, the CEOs of highly levered firms with equity-linked compensation have incentives to increase the risk of their investment activities and assets as the possibility of financial distress and bankruptcy looms larger. (For an illustration, see the box inset). And as the closer the firm gets to insolvency, the stronger the temptation facing the CEO to “gamble on resurrection.”

What is true for highly levered firms in general is particularly true of financial firms. The equity of banks and other financial institutions have become especially option-like for at least four reasons:

1. the limited liability of banks organized as corporations;
2. the extreme leverage of banks in comparison with firms in other sectors;
3. the asymmetric nature of the payoffs to the underlying debt securities themselves; and
4. the widely held assumption that the Federal Reserve or other arms of the federal government will act to support financial firms in a crisis, even if those firms were not able to issue liabilities backed by federal deposit insurance.

Virtually all large financial institutions are limited liability companies. And to the extent such institutions are levered, the stockholders have effectively shifted significant risks to the firm’s lenders and bondholders. In a recent paper on risk-taking and executive compensation, Federal Reserve economist Hamid Mehran pointed out that whereas the average non-financial company has a capital structure with 60% equity and 40% debt, average bank leverage has often run as high as 95% of total capital.³ Bear Stearns and Lehman Brothers, for example, had leverage ratios even higher than 95% before the onset of the crisis. And several of the firms that failed during 2008–2009 had not only debt-to-equity ratios greater than 30 to 1, but significant maturity mismatches as well. Their liabilities were often very short-term (e.g. overnight repurchase agreements) and their assets

2. “On the Pricing of Corporate Debt: The Risk Structure of Interest Rates,” *Journal of Finance*, 29, May 1974. See also Chapter 12 in *Continuous-Time Finance*.

3. Hamid Mehran, Patrick Bolton and Joel Shapiro, 2010. “Executive Compensation and Risk Taking,” Staff Reports 456, Federal Reserve Bank of New York.

Wealth Transfers from Debtholders to Shareholders: An Example

In their much cited 1976 article called “Theory of the Firm: Managerial Behavior, Agency Costs, and Ownership Structure,”⁴ Michael Jensen and William Meckling illustrated this wealth transfer with a simple example.

“Assume a firm owes \$90 of debt, it has \$100 in cash, and it has two investment options for its \$100 in cash, a high-risk option and a low-risk option. The firm will pursue one of its investment options, and then whatever the outcome, the firm will liquidate and distribute its assets to repay creditors, with shareholders receiving any residual.

The low-risk option has two possible outcomes:

1. 60% chance of returning \$110, and
2. 40% chance of returning \$90.

This low-risk option’s expected value to the firm is \$102 $((60\% \times \$110) + (40\% \times \$90))$, or $\$66 + \36 . Net of the \$100 investment, the firm expects a gain of \$2.

The firm’s high-risk option has two possible outcomes:

1. 10% chance of returning \$1,000, and
2. 90% chance of returning \$0.

This high-risk option’s expected value to the firm is \$100 $((10\% \times \$1,000) + (90\% \times \$0))$, or $\$100 + \0 . Net of the \$100 investment, the firm expects no gain from this investment.

The low-risk investment is clearly better for the firm and for creditors. Creditors will prefer the safer, low-risk investment because they will be repaid in full in any event.

Whichever outcome occurs, the firm will still have at least \$90 to pay creditors. By contrast, with the high-risk investment, creditors face a 90% chance of being paid nothing.

Shareholders, however, will prefer the high-risk investment because its expected return to them is much higher than with the low-risk investment. Consider the distribution of value as between creditors and shareholders with the low-risk investment. The expected value of the \$102 return is shared \$90 to creditors and \$12 to shareholders.

(Creditors’ return is $(60\% \times \$90) + (40\% \times \$90) = \$90$; shareholders expect to receive $((60\% \times \$20) + (40\% \times \$0))$ or \$12).

Now consider the distribution of returns from the high-risk investment. If the investment succeeds, creditors would be paid in full, receiving their \$90; if the investment fails, creditors receive nothing. Because there is only a 10% likelihood of full payment to creditors, and a 90% chance they will receive nothing, their expected return is $((10\% \times \$90) + (90\% \times \$0)) = \$9$. Shareholders on the other hand expect to receive $((10\% \times \$910) + (90\% \times \$0))$ or \$91.

So even though the risky investment is worth less to the firm overall and much worse for creditors in expected value terms, shareholders would push for the risky investment since its expected return to them of \$91 is much higher than their expected return of \$12 from the low-risk investment.

4. Michael Jensen and William Meckling, “Theory of the Firm: Managerial Behavior, Agency Costs, and Ownership Structure,” 3 *Journal of Financial Economics*. 305 (1976)

relatively long-duration and illiquid.

Although these positions may seem foolhardy with the benefit of hindsight, many such institutions enjoyed exceptionally good returns for many years. The spread on the difference between the yields of relatively long-dated, relatively illiquid assets and short-term liabilities produced a long stream of profits.

Debt securities themselves usually have very asymmetric pay-offs. That is, they usually repay investors their original capital and some return on it. Occasionally, though firms fail to repay their debts, which means that debt investors typically face a high probability of modest gains with some relatively small chance of a very large loss. And this in turn implies that even risky, levered debt investments will produce gains in most periods. As a result, some financial firms can appear very successful for surprisingly long periods of time despite having assumed what would eventually prove to be fatally high levels of risk.

Bear Stearns’ stock performed extremely well over the period 1990–2007, going from less than \$5 per share in late 1990 to \$171 in January of 2007, a compound annual growth rate of 25%. Lehman Brothers shares went from less than \$3.50 in October of 1994 to \$85 by the end of January 2007, a compound annual growth rate of 30%. The rate of return to the shareholders of both Bear Stearns and Lehman Brothers was substantially higher over those decades than for Berkshire Hathaway shareholders over the same time period.

Not all the profits of these banks, given their large credit risks and maturity mismatches, represented pure *economic* profit—that is, profits after adjusting for risk and the cost of capital. It is beyond the scope of this analysis to determine precisely how much of the shareholder return before 2007 was simply a return for bearing risk or gains from shifting risk to debtholders. Nevertheless, it seems evident to us that a significant proportion of that return was the result of bearing or shifting extraordinary levels of risk.

Not only did the equity of such firms have option-like characteristics, but much incentive compensation also took the form of *stock options*. So effectively, managers had been granted options on what amounted to *de facto* options on risky spread positions (long the yield curve, long illiquid assets). Needless to say, these decision-makers had considerable incentive—given the asymmetric nature of the payoffs to them personally—to pile risks onto their employer’s balance sheets. At the same time, the firm’s debtholders and U.S. taxpayers, who were effectively bearing the downside risks, faced very different risk-reward tradeoffs.

Although stock option grants vested only over multi-year periods, senior executives did have several opportunities to cash in on the appreciation in the underlying shares during the 1990–2007 period. The periodic exercise of options created this disconnect between the cumulative performance of U.S. companies and the total compensation of their top executives over the entire 1990–2007 period.

In a recent paper called “The Wages of Failure,” Harvard Law School Professor Lucian Bebchuk showed that senior executives at Lehman Brothers and Bear Stearns cashed in a total \$2.5 billion during the eight years before their firms collapsed in 2008.⁵ Bebchuk argued that poor compensation practices contributed to the financial crisis because executive compensation was often not strongly tied to their firms’ fortunes.

Many observers agree that at least part of the solution to the disparity between cumulative performance and cumulative reward lies in “back-loading” payouts to executives (even if total potential payouts are not reduced).⁶ Such back-loading would require deferring actual payouts for many years, perhaps until the retirement of the executive.

To extend the same effect to a broader population of upper-middle managers, one possible solution, as discussed in more detail below, would be to create a system of “bonus banks.” A bonus bank⁷ is an incentive compensation arrangement that is intended to reduce the likelihood that the cumulative payouts to an executive will differ from cumulative performance. Moreover, it aims to accomplish this effect without weakening or eliminating incentives for performance. By design, such compensation plans permit managers to earn bonuses that are limited only by the profits generated in the manager’s area of responsibility (for example, as when a trader’s bonus is a fixed percentage of his or her trading profit).

Nevertheless, the success of the system depends upon maintaining a distinction between bonus “declarations” and actual cash payouts. While there are no inherent limits to bonuses “declared” in a particular year, very large portions of above-target bonuses are retained in a bonus bank. So, if

a trader generated a huge bonus declaration in Year 1 simply through a lucky gamble, a correspondingly unlucky gamble in Year 2 would result in a negative bonus declaration and the elimination of what had been a positive bonus bank balance for that trader.

Many observers and scholars have demanded, or at least wished for, a way to “claw back” executive bonuses that seem, in retrospect, to have been undeserved. Obviously, it is impractical to try to recover bonuses that have already been paid out in cash. Because the bonus bank system holds much of large bonus declarations at risk, “clawbacks” become not only permissible but feasible in the event of future failure. If employed consistently over multi-year periods, bonus banks should exert a moderating effect on managerial risk preferences. Exposing senior management to the potential downside of some of their decisions will likely reduce the risk assumed by the firms they manage.

The question of whether keeping large sums of executive compensation deferred and at risk is sufficient to deter senior executives from imprudent risk-taking has not been resolved. Some compensation specialists continue to express doubt that senior executives would knowingly have assumed such risks since many still had enormous sums at risk when their firms failed.⁸ Although these specialists concede that the cashouts reduced the personal financial risk for senior executives, they insist that it would have been irrational for executives to make high-risk gambles with the substantial equity investments they had remaining in their own firms.

But even so, the compound option-like nature of stock options on levered financial firms could partly explain why senior executives were willing to take large credit and maturity risks onto the balance sheets of the firms they managed. To the extent that such risk-bearing or risk-shifting were actually a significant *source* of the high rates of return, such executives would have been “rational” in seeking to increase such risks even while aware that their firms risked bankruptcy.

In his 2009 book *House of Cards*, *Fortune* magazine contributing editor William Cohan, quotes former Bear Stearns CEO James Cayne as saying the following after his firm’s bankruptcy:

“The only people [who] are going to suffer are my heirs, not me. Because when you have a billion six and you lose a billion, you’re not exactly like crippled, right?”

It is certainly true that \$1 billion at risk gave Cayne powerful reason to want to avoid financial disaster at Bear Stearns. Yet, he might not have had \$1.6 billion to lose in the first place had he not permitted Bear Stearns to assume great

5. Lucian Bebchuk, “Wages of Failure,” Harvard Law School working paper.

6. Sharon Bowles, chairwoman of the European Parliament’s Economic and Monetary Affairs Committee, has recommended that bonuses paid to senior bankers would be held for five years in a pool that the bank could use as capital to absorb losses.

7. For a detailed explanation of bonus bank design and operation, see S. David Young and Stephen F. O’Byrne, *EVA and Value-Based Management*, 2000 McGraw-Hill.

8. James Cayne, CEO of Bear Stearns, and Richard Fuld, CEO of Lehman Brothers, each had approximately \$1 billion in stock and stock option value still at risk in 2007.

risks. So, improved incentive design at financial institutions must aim not only to expose decision-makers to the downside they expose their shareholders to, but also to limit the rewards for generating temporary *gains* from risk-bearing and risk-shifting that time will eventually reverse.

Several financial economists now argue that providing equity in financial institutions to executives of those institutions is liable to create systemic risk. They no longer see the problem as a conflict between managers and shareholders, but rather as a conflict between risk-shifting managers and equity holders on one side and broader society on the other.⁹ In reviewing the experience of 113 financial firms from 1995 through 2005, researchers found a significant positive relationship between equity-based pay and the probability of default, with lower risk of default associated with non-equity pay such as cash bonuses.¹⁰ Debt investors would not have provided capital to financial institutions on the terms they did if they had not expected governmental protection for them if those financial institutions were to fail. That belief was borne out by events in 2008 and 2009. Although equity holders in Bear Stearns, AIG, Fannie Mae, Freddie Mac and other institutions eventually suffered substantial or complete losses, government intervention rescued the debtholders of those institutions. Debt investors in Lehman Brothers and Washington Mutual were the unhappy exceptions to the general experience.

Part Two: The Proposed Solutions

Clearly, much recent scholarship raises serious questions about the desirability of equity-linked pay for financial executives. Yet the most obvious traditional alternative seems unappealing as well. Replacing incentive compensation with fixed compensation would simply reintroduce a host of old agency problems. Bank executives' inclination to take risk would likely diminish, but so would their inclination to innovate and provide capital to commerce and industry efficiently.

Harvard Law professors Lucian Bebchuk and Holger Spamann agree that managers with equity-linked compensation face enormous risk-shifting temptations and therefore recommend compensating bank executives with a basket of securities that correspond to all the categories of bank capital, including preferred shares, and debt securities as well as common shares.¹¹ Bebchuk and Spamann also emphasize that boards of directors are unlikely to impose such compensation arrangements without outside pressure because the boards represent only common shareholders and not preferred shareholders or debtholders.

To overcome this obstacle, the authors suggest that bank regulators impose higher capital requirements upon those banks whose executives have been granted asymmetric pay-offs—that is, cases where the sensitivity of an executive's pay to increases in bank equity is significantly greater than its sensitivity to decreases. Bebchuk and Spamann acknowledge the difficulty of the regulatory task and the possibility that banks might have to offer higher levels of expected pay in order to retain good managers.

Recognizing the same risk-shifting temptations seen by others, a team of economists, including Hamid Mehran from the New York Federal Reserve, Patrick Bolton from Columbia, and Joel Shapiro from Oxford, has recommended that bank executive pay be linked to the spreads on credit default swaps (CDS) for their bank's debt.¹² The authors also hinted that regulatory pressure would be necessary to implement such arrangements at banks (but offered no specific suggestions for achieving this). The economists also noted that a reduction in a firm's cost of debt would likely benefit the shareholders as well, which should provide an inducement to tie pay to CDS spreads.

Wharton Professor Alex Edmans has investigated the potential benefits of paying executives with "inside debt"—that is, unsecured unfunded debt obligations of the firm that are comparable to bonds, notes, or bank debt—over a multi-year period for several years. He makes the important point that managers have often been rewarded with payoffs that are quite similar to those of inside debt, but that this has not been sufficiently appreciated, perhaps because those elements of compensation have been described in other terms. For example, the pensions and deferred compensation often included in executive pay packages are claims that resemble much more debt more than equity.

In his most recent paper on the subject, Edmans and his co-author present a formal model for calculating the optimal proportion of inside debt for CEO compensation.¹³ The basic insight of this model is that the proper proportion of debt, as opposed to equity-linked compensation, changes with the leverage of the firm. The managers of more highly levered firms should be paid with greater proportions of inside debt, which in turn should cause them to manage their firms more conservatively. Conversely, the managers of all equity-financed firms with high growth prospects should be compensated much more heavily in equity-linked pay. The Edmans model explicitly recognizes a trade-off between the partly conflicting aims of encouraging managerial effort of behalf of shareholders (which favors equity-linked

9. Hamid Mehran says: "Structuring CEO incentives to maximise shareholder value in a levered firm tends to encourage excess risk-taking." *Executive Compensation and Risk Taking*; by Hamid Mehran, Patrick Bolton and Joel Shapiro; paper presented at Columbia University. According to René Stulz of Ohio State and Rüdiger Fahlenbrach of the Swiss Finance Institute, "[Strong equity incentives] may lead to more systemic risk, indicating that there may be a conflict between shareholder wealth maximization and financial stability." "Bank CEO Incentives and the Credit Crisis," *Journal of Financial Economics* (forthcoming).

10. "The Probability of Default, Excessive Risk, and Executive Compensation: A Study of Financial Services Firms from 1995 to 2008," Balachandran, Kogut, and Harnal.

11. Bebchuk & Spamann, *Regulating Banker's Pay*, Georgetown Law Journal 2010.

12. Bolton, Mehran, and Shapiro, "Executive Compensation and Risk Taking," Federal Reserve Bank of New York Staff Reports, no. 456, June 2010.

13. Alex Edmans and Qi Liu, "Inside Debt," *Review of Finance* (2010), 1–28.

compensation) and limiting opportunistic risk-shifting (which favors debt-linked pay).

Once a firm files for protection under Chapter 11, there is a distinct rank order of claims. Often, the creditors will argue that once the firm's old equity has ceased to exist, they should now be recognized as the *de facto* owners of the firm and that management should act in the creditors' interests rather than for the old equity holders. Prior to the bankruptcy filing, however, the creditors still have contractual rights, including a stated return (coupon) and the repayment of principal upon maturity. The upside of the investment is relatively fixed but the downside risk is quite extensive. This contrasts with equity, where the downside is fixed but the upside is unlimited.

The ultimate value to each class of claim holder is highly sensitive to management action, at least in certain circumstances. As a firm nears insolvency and the value of its liabilities approaches that of its assets, changes in its enterprise value become enormously important to its creditors. Managers with only equity-linked incentives will be tempted to risk the liquidation value of the firm in a gamble on "resurrection." Creditors, on the other hand, will be concerned not only about default risk, but also about the preservation of asset value in liquidation.

Emory Law Professor Frederick Tung has argued that, as a firm approaches insolvency, economic efficiency is best served by aligning managers' incentives more closely with those of creditors.¹⁴ In his words, "insolvency is merely the extreme case of high leverage, where a firm's shareholders have nothing left to lose, and managers are effectively betting with creditors' money." Tung's paper examines banker incentive compensation with the goal of aligning management's personal interest more closely with those of debtholders, and with regulator's concerns about safety and soundness. Given the complex corporate structure of many bank holding companies (BHC) with a diverse portfolio of bank and non-bank subsidiaries, Tung suggests that compensation incentives should be tied to the bank securities at the subsidiary level where the bank executive has direct impact on the financial health and returns of the bank (as opposed to securities issued by the BHC, whose values would be relatively unaffected by the executive's actions).

Because subordinated debt lies between conventional debt and equity in terms of priority, it could play a strategic role in encouraging better managerial behavior towards risk. Senior creditors may view the subordinated debt as another layer of protection since the principle of absolute priority requires that the senior unsecured debt be repaid in full before subordinated debt holders would receive any distributions in bankruptcy. Tung also recommends that the subordinated debt have maturities from eight to ten years with a required

"hold period" of at least half that period. The hold period is expected to encourage management to take a longer-term view of risk. A public market price for the securities should also enhance transparency and provide an external evaluation of the firm's risk.

Part Three: Incentives for Upper-Middle Management

Many of these ideas and suggestions have merit and some deserve to be incorporated into an improved incentive compensation framework for financial institutions. But if we agree with much of the observations and recommendations of these scholars, we also believe that they may have overlooked some important characteristics of large financial firms.

First, large financial institutions differ from most other large enterprises in that they have relatively large numbers of employees with the legal right to risk their employer's capital. Many large banks employ hundreds of traders and other professionals who can commit their firm's capital with a brief phone call. For purposes of this discussion, we will refer to this large cohort of decision-makers as "upper-middle management." Although financial firms also employ highly paid professionals to act as advisors to firm clients, the most relevant ones here are traders, underwriters, and risk managers who affect the firms market and credit risk profile. It is important to recognize this group because it means that decisions about risk are in an important sense *dispersed* throughout large financial firms. Too much of the theoretical work proceeds on the implicit assumption that all the important decisions about risk and project selection are made by the CEO or some tiny number of senior managers.

Although the CEOs of large financial firms clearly have great influence over the institutions they manage, they cannot operate all the levers themselves and major changes in direction take time. Once momentum is established, it can take years to reverse course. For this reason, it is important to consider how a fairly large group of upper middle-managers could have become collectively less sensitive to the risks they took onto their employer's balance sheet.

Ironically, one major contributor to reduced concerns about risk is likely to have been earlier efforts meant to align the interests of such middle managers with those of shareholders. Although most upper-middle managers have responsibility for very specific operations within the firms they work for, their performance bonuses were often paid in the form of restricted equity or equity options on the entire firm. And this may well have had two unintended and negative consequences:

The first is that the motivating power of the incentives was almost certainly reduced. Although annual performance awards were generally tied to the profitability of the particular

14. Frederick Tung, Boston University, "Pay for Banker Performance: Structuring Executive Compensation for Risk Regulation," working paper dated, March 2010 forthcoming in the *Northwestern University Law Review*.

business units the managers worked for, tying the eventual payout to the share price of the entire firm weakened the connection between individual and unit performance and ultimate payout. But this did not mean that upper-middle managers were paid less. Rather, it meant that because the ultimate payout was a function of share price performance over a multi-year period—something that such managers had little direct influence on—the link between pay and performance was effectively weakened.

Second, upper-middle managers became beneficiaries of firm-wide high leverage, high credit exposure, and maturity mismatch risk. Although these risks eventually proved extremely painful to many institutions and fatal to some, they also provided great benefits to shareholders and stock option holders for many years. It is impossible to distinguish clearly between those returns that arose from innovation and superior judgment on the one hand and speculative risk-taking on the other. Nevertheless, we are convinced that only a great deal of high risk-taking could have accounted for annualized rates of return in the range of 25%—30%. As mentioned before, shares of both Lehman Brothers and Bears Stearns appreciated at very high rates for about a decade and a half—and the related stock options would have appreciated at even higher rates.

Thus, it seems very likely to us that the long-lived benefits of risky financial positions degraded what might previously have been much more conservative firm-wide cultures. And one of the conclusions we have reached is that taking away the upside from mere risk-taking or risk-shifting may accomplish as much as exposing managers to the downside of their decisions.

To discourage excessive risk-taking, it's important to begin by recognizing that the problem is not simply a matter of equityholders shifting risks to debtholders. Opportunities to shift risk from one claimant on a firm's cash flows to another arise with every class of claimants created. The boundary between each category of claims gives rise to the chance of one category creating option value for itself by shifting risks to the other. Managers who have been granted options on stock can shift risks to ordinary stockholders (especially when firms are solvent); and as firms approach insolvency, risk can also be shifted from subordinated to senior debtholders. Indeed, as a general observation, any time corporate decision makers face major "discontinuities" in their personal payoffs (think about "cliff vesting"), it is not surprising to find unwanted or suboptimal behavior around those discontinuities.

To reduce the likelihood of inefficient behavior, we believe that senior debt has some role to play in managerial compensa-

tion as well as subordinated debt. When a firm's equity holders have been completely wiped out, managers aligned with the old subordinated debtholders may be inclined to "gamble on resurrection" at the expense of the old senior debtholders. On the other hand, managers whose personal financial interests are aligned with several classes of claimholders (say, for example, common shareholders, subordinated debtholders, and senior debtholders) would have a "continuous" interest in preserving the value of the entire enterprise.

We accordingly recommend that CEOs and other very senior executives be compensated with a mix of restricted equity and inside debt (deferred bonuses denominated in subordinated debt, with other benefits perhaps taking the form of senior debt). To reduce the chance of a significant divergence between cumulative performance and the cumulative payout to these executives, we also suggest that significant proportions of the equity and inside debt be held at risk until retirement.

In this regard, we acknowledge that there would still be conflicts of interest between equityholders and various debtholders. But these conflicts would be substantially internalized by the most senior executives themselves since they would have to manage their enterprises with their own trade-offs in mind. As a practical matter, however, we also believe that the equity-versus-debt conflict would be less intense in large financial institutions, even with high leverage, because decisions about risk are diffused among a much larger group of upper-middle managers.

Finally, and for all the reasons cited above, we also conclude that the best way to compensate upper-middle managers in trading-related functions in large financial firms is to award bonuses determined not by the firm's stock price performance, but mainly by fixed percentages of the profits generated by their business units, *subject to the following constraints*:

- Although bonus awards or declarations are not subject to caps, cash payouts are severely limited unless they are related to profits realized completely in the same accounting period.
- If trading profits are not fully realized in the accounting period but rather the results of mark-to-market or mark-to-model processes, then virtually all of a bonus declaration should be held at risk against losses in future periods or awarded in the form of a mix of senior and subordinated debt of the financial institution (inside debt).
- Bonus declarations would be negative in the event of business unit losses and therefore accomplish the desired "claw-back" of previously declared bonuses.¹⁵

15. Some large financial institutions are beginning to adopt important elements of such compensation plans including the possibility of negative bonuses known as "maluses." See, for example, "UBS shakes up pay structure", *Financial Times*, November 18, 2008 and "About the UBS compensation model" in *UBS Newsletter for Banks and Financial Institutions*, Spring 2009.

- The “currency” used in funding bonus banks would include significant amounts of subordinated debt.

By promising upper-middle management what amounts to a fixed slice of the net present value they create for their shareholders, this proposal would provide managers with a powerful incentive to generate profits at high and sustainable levels. Indeed, such incentives would be stronger than equity in a large publicly-held firm because they replicate owner-like payoffs at more local levels within the firm such as divisions or trading desks. There would be a far stronger relationship between the results achieved and the awards to managers, in large part because bonus banks with the prospect of negative bonus declarations would dramatically change upper-middle manager behavior in a desirable direction. Not only would there be a much more linear relationship between profits generated and eventual payouts, but managers would become particularly sensitive to hints of poor risk management practices anywhere in the firm.

Bonus payouts that take the form of significant proportions of inside subordinated debt would maintain the strong link between results generated and the rewards to particular managers over most of the range of outcomes. By design, managers would be subject to large personal losses in the event of the failure of the firm. While no one would wish to see managers suffer such personal losses, we cannot envision any way to create firm-wide cultures that are intolerant of opportunistic risk-bearing or risk-shifting without allowing the possibility of such negative outcomes.

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