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Article

The challenge of turning managers into owners

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institutions? In a recent paper, I speculate that reforms in goods and financial markets will indeed force reforms in the labor market.⁸

The other question is normative. If governments want to reform their labor market institutions, how should they do it? To answer this last question, Jean Tirole and I have started working on the optimal design of labor market institutions.⁹ Hopefully this will be the topic of another *NBER Reporter* article in the future.

¹ O.J. Blanchard and P. Portugal, "What Hides behind an Unemployment Rate? Comparing Portuguese and U.S. Unemployment," *NBER Working Paper No. 6636*, July 1998, and in *American Economic Review*, 91 (1) (March 2001), pp. 187-207.

² O.J. Blanchard, "The Medium Run," in

Brookings Papers on Economic Activity, 2 (1997), pp. 89-158. O. J. Blanchard, "Revisiting European Unemployment: Employment, Capital Accumulation, and Factor Prices," *NBER Working Paper No. 6566*, May 1998, and *Geary Lecture*, ESRI, June 1998.

³ O.J. Blanchard, "The Economics of Unemployment: Shocks, Institutions, and Interactions," *Lionel Robbins lectures*, 2000.

⁴ O.J. Blanchard, "The Economics of Unemployment: Shocks, Institutions, and Interactions;" and O.J. Blanchard and F. Giavazzi, "The Macroeconomic Effects of Labor and Product Market Deregulation," *NBER Working Paper No. 8120*, February 2001, and in *Quarterly Journal of Economics*, 118 (3) (August 2003), pp. 879-909.

⁵ O.J. Blanchard and J. Wolfers, "The Role of Shocks and Institutions in the Rise of European Unemployment," *NBER*

Working Paper No. 7282, August 1999, and *Harry Johnson Lecture*, *Economic Journal*, Vol. 110 (March 2000), pp.1-33.

⁶ S. Nickell, "Labour Market Institutions and Unemployment in OECD Countries," *CESIFO DICE Report 1*, No. 2 (2003), pp. 13-26.

⁷ O.J. Blanchard and T. Philippon, "The Decline of Rents, and the Rise and Fall of Unemployment in Europe," forthcoming as an *NBER Working Paper*.

⁸ O.J. Blanchard, "The Economic Future of Europe," *NBER Working Paper No. 10310*, March 2004, and forthcoming in the *Journal of Economic Perspectives*.

⁹ O.J. Blanchard and J. Tirole, "Contours of Employment Protection," *MIT Working Paper 03-35*, September 2003, and "The Optimal Design of Unemployment Insurance and Employment Protection," forthcoming as an *NBER Working Paper*.

The Challenge of Turning Managers into Owners

Brian J. Hall*

During the past two decades, the influence of shareholders has grown dramatically as institutional investors and other shareholder representatives became increasingly vocal and activist in exercising their "ownership rights" over the decisions, policies, and governance of corporations. Shareholder anger over the recent corporate scandals appears to have further increased

shareholder activism, continuing or even accelerating the trend of increasing shareholder power.¹ Aligning the interests of shareholders and managers has been a central goal of institutional investors and shareholder activists. To a significant extent, that goal has been realized, because the large increase in executive pay since the early 1980s was caused primarily by dramatic increases in equity-based pay (especially stock options), which led to a nearly ten-fold increase in the relationship between top executive wealth and shareholder returns.² In spite of this, there has been widespread concern (and outrage) among the press, shareholders, and the public that execu-

utive pay has become "excessive" while also motivating dysfunctional behavior. These concerns are targeted particularly at instances where large executive payoffs — typically from option exercises or sales of company stock — follow (or precede, in the case of the company scandals) poor corporate performance and declining company stock prices. The shareholder goal of "turning managers into owners" is more difficult to achieve than it may seem. What is the best equity-instrument? Over what period should equity grants vest? How much should be granted? What pay designs minimize risk-taking and gaming temptations? Much of my research concerns

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the many pay-design challenges and tradeoffs involved in turning managers into owners. In what follows, I discuss several of these issues.

Creating Leveraged Ownership Incentives

Although there has been a recent shift toward restricted stock (stock that vests over time), the vast majority of executive equity grants have been in the form of stock options rather than stock. But if the chief goal of equity-based pay has been to turn managers into owners (who own shares, not options), why has pay been dominated by options instead of stock? Although such an explanation does not always sit well with economists trained to think that important economic decisions are affected by real economic (not accounting) factors, there is considerable evidence that the accounting rules are one of the dominant factors determining choices among equity-pay instruments.³ Current accounting regulations heavily favor stock options, because option grants create no accounting expense on company profit-and-loss statements while stock grants (and most other equity-pay instruments) do create accounting charges. As a result, equity-based pay plans are astoundingly similar across companies, with the vast majority of plans in the form of at-the-money options designed to qualify for the favorable accounting treatment. Discount, indexed or performance-based options⁴, all of which have certain advantages, are rarely even given serious consideration by companies because they would lead to accounting charges. Beginning in 2005, the accounting rules are likely to be changed, requiring options to be expensed, and this should have large effects on equity-based pay design.

But even with a level playing field in terms of accounting, options have another advantage over stock. Options are a leveraged ownership instrument.⁵ Because an option is less expensive to shareholders than a share of stock — in terms of the expected transfer from shareholders to the options holder — companies generally can grant two to three times more options than shares

for any given cost to the company. Thus, options provide greater upside potential than stock for a given company cost. Leverage is a helpful feature of incentive plans, often enabling companies to provide greater pay-to-performance without increasing costs. For example, most bonus plans (especially commission plans for sales forces) are designed to create payoffs only after certain quotas or thresholds are reached. This is because companies would rather pay a higher commission rate (say 12 percent) for sales above some (generally reachable) threshold than a lower commission rate (say 2 percent) on all sales. Options — which create a payoff only for stock prices that are above an exercise price — create similarly leveraged incentives.

Option Fragility

But the leverage of options goes in both directions. When stock prices fall, options fall underwater and quickly lose their value. Stock options fall underwater much more than is commonly believed.⁶ More than half of all options were underwater at the end of 2002. Given that this followed a three-year bear market, this fact does not surprise most people. What does often seem surprising to most is that approximately one-third of all options were underwater in the mid-1990s and also in 1999 at the height of the bull market. Because of the volatility of stock prices (and the fact that stock returns are skewed to the right, so that the median stock price return is much lower than the average) stock options frequently fall underwater, a problem that does not go away with the passage of time.⁷

Options are therefore a fundamentally fragile incentive instrument, unlike stock, which can't fall underwater. And in practice, the underwater option problem causes significant problems for companies that rely heavily on options. Underwater options fail to retain executives, while also losing their effectiveness in terms of creating ownership incentives. It is for this reason that option-granting companies feel pressure to reprice options and to take other actions deemed to be highly objectionable to

shareholders. While actual option repricings have become exceedingly rare in practice (in part owing to shareholder activism and in part because of accounting rule changes that made it punitive), the evidence suggests that many companies engage in a type of back-door repricing — they make “above average” option grants when stock prices fall significantly. While this helps to restore incentives *ex post*, it undermines incentives *ex ante*.⁸

A general principle taught in “Incentives 101” is that well-designed incentive plans should continue to motivate managers and workers in a wide-range of circumstances. That is, well-designed plans are resilient, not fragile. Thus, the choice between options and stock involves a tradeoff between leverage and resilience. For many years, Microsoft granted only options to their executives and employees. But because of the underwater option problem facing the company, Microsoft CEO Steve Ballmer announced in 2003 that its days of issuing stock options were gone forever, making a permanent switch to more resilient stock grants. The early evidence suggests that many other companies will switch to restricted stock in 2005 (and some have already made the change in anticipation of the rule change) once the coming accounting rule changes put stock and options on a (roughly) even playing field.⁹

Value-Cost Efficiency

A fundamental principle of finance is that investors should diversify, not putting “all their eggs in one basket.” But according to Mark Twain, it is wise to “put all your eggs in one basket, and watch that basket carefully.” Twain’s clever retort does well in summing up the fundamental incentive-risk tradeoff that requires managers to be insufficiently diversified in order to have strong ownership incentives. Thus, the price that must be paid to ensure strong ownership incentives is the imposition of non-diversification risk on executives. Therefore, risk-averse and undiversified executives rationally discount the value of the equity-based pay.¹⁰ Thus, equity-based pay is generally more expensive —

because companies must grant more of it in expected value — than less risky cash compensation. Put another way, unlike cash, the value to executives of equity-pay is generally less than the expected cost of that equity to shareholders, which is approximately the market value of that equity (with a downward adjustment for early exercise in the case of options), since that is its economic (or “opportunity”) cost. Option value does not equal option cost.¹¹

Of course, the higher cost of equity is well worth it if the resulting ownership (and retention) incentives are sufficiently strong and beneficial. But a growing body of research suggests that the “value-cost” inefficiency of options is considerable, with value cost-ratios less than 0.5 for reasonable parameter values. Value-cost ratios for stock are much higher, in the range of 0.85 or higher. The large value-cost inefficiency of options is especially problematic for middle and lower-level managers whose typically limited ability to affect share prices in significant ways makes it seem unlikely that the incentive benefits of options are large enough to offset their costs in terms of inefficiency. The reason that the value-cost inefficiency is so high for traditional options is straightforward, and tied closely to the previous analysis of option fragility. Because traditional options fall underwater so often, they are much riskier than stock, leading risk-averse and undiversified executives to discount them much more heavily than they discount their stock grants.

Transparency and Understandability

Effective equity pay plans are also transparent to shareholders and understandable to executives. Transparency is important, because it helps to guard against the challenges created by boards who agree to excessive grants to executives, either because they are weak or easily “captured” by powerful CEOs.¹² Understandability is important because the incentive properties of equity are undermined when man-

agers fail to comprehend the value of their equity holdings or how that value changes in response to stock price changes.

Stock has clear advantages over options in terms of transparency and understandability.¹³ While stock is easily valued by multiplying price times quantity, option valuation is complex and requires the use of non-intuitive pricing models that aren’t even correct for the purpose of determining the option’s value or cost. Although more appropriate for measuring company cost than executive value, standard option pricing models rely on assumptions that clearly do not apply — that options are tradable or hedgeable in markets. But even after options vest, executives generally can’t sell them or hedge them. Option pricing models assume that options are held by investors who will exercise them optimally, typically at maturity. But executives and employees routinely exercise their options early — and in ways not easily captured by formulas — which causes option pricing models to overstate the expected payoff of an option held by executives. Moreover, the formula requires measures of expected future volatility (and a few other parameters) that are not easily estimated or obtained without an active market for options. It is no wonder that many executives have little understanding of how to value their options while shareholders and boards continue to refer to option grants in terms of the “number of options” (masking their expected cost) while referring to stock grants in terms of their value (making the expected cost more transparent).¹⁴

TSOs and the Coming Revolution in Equity-Pay Design

There is an emerging view that options are problematic as an incentive device.¹⁵ This makes it likely that the recent shift away from options will accelerate dramatically when the accounting rules change in 2005. While much of the shift is likely to be toward restricted stock — which has the advantages of greater resiliency,

value-cost efficiency, transparency and understandability — it is likely that we will see lots of new ideas and pay instruments as board and consultants are liberated from the accounting rules that have for so long stifled innovation in this area.

One intriguing possibility is the introduction and proliferation of ongoing transferable stock option (TSO) programs. TSOs are options that executives and employees can sell to investment banks once they have become fully vested.¹⁶ When Microsoft moved away from options and toward restricted stock, they contracted with J.P. Morgan to turn Microsoft’s underwater options into TSOs¹⁷, enabling Microsoft’s employees to sell their options. While the move toward restricted stock and the innovative one-time “clean up” of Microsoft’s underwater options received much attention in the financial press, there was little attention paid to the fact that this transaction cleared away key regulatory and tax hurdles for the introduction of ongoing TSO programs, with the potential to transform the prevailing norms of equity-pay design. TSOs have many advantages over standard options. They are resilient, because they retain value when the stock price drops, while also having much higher value-cost efficiency (for related reasons). Since investment banks can bid for TSOs on a regular basis, they create third-party prices that make options as transparent and understandable as stock. Also like restricted stock, TSOs can be created with vesting contingent on both time and performance (measured in any way). But, unlike stock, TSOs are leveraged incentives. Indeed, with only minor exceptions, TSOs are essentially a leveraged version of restricted stock, retaining all of the advantages of restricted stock while also retaining the leverage advantage of options.

¹ For evidence and analysis, see B. Holmstrom and S. N. Kaplan, “The State of U.S. Corporate Governance: What’s Right and What’s Wrong,” NBER Working Paper No. 9613, April 2003, and Journal of Applied Corporate Finance, Vol. 15, No. 3 (Spring 2003), pp. 8-20.

² See B. J. Hall and J. B. Liebman, "Are CEOs Really Paid Like Bureaucrats?" NBER Working Paper No. 6213, October 1997, and *Quarterly Journal of Economics*, Vol. 113, No. 3 (August 1998), pp. 653-91; G. P. Baker and B. J. Hall, "CEO Incentives and Firm Size," NBER Working Paper No. 6868, December 1998, and forthcoming in *Journal of Labor Economics*, 2004; and B. J. Hall, "What You Need to Know About Stock Options," *Harvard Business Review*, (March-April 2000), pp. 121-9.

³ B. J. Hall and K. J. Murphy, "The Trouble with Stock Options," NBER Working Paper No. 9784, June 2003, and *Journal of Economic Perspectives*, Vol. 17, No. 3 (Summer 2003), pp. 49-70.

⁴ Discount options are in-the-money at grant. Indexed options have an exercise price that moves with some stock market or industry-based index. Performance-based options vest only when certain performance hurdles are met, whereas standard options vest over time, such as 25 percent per year for four years.

⁵ See B. J. Hall, "What You Need to Know about Stock Options;" B. J. Hall and K. J. Murphy, "Optimal Exercise Prices for Executive Stock Options," NBER Working Paper No. 7548, February 2000, and *American Economic Review*, Vol. 90, No. 2 (May 2000), pp. 209-14, and B. J.

Hall, "Six Challenges in Designing Equity-based Pay," NBER Working Paper No. 9887, August 2003, and *Journal of Applied Corporate Finance*, Vol. 15, No. 3 (Spring 2003), pp. 21-33.

⁶ B. J. Hall and T. A. Knox, "Managing Option Fragility," NBER Working Paper No. 9059, July 2002, and B. J. Hall, "Transferable Stock Options (TSOs) and the Coming Revolution in Equity-based Pay," *Journal of Applied Corporate Finance*, Vol. 16, No. 1 (Winter 2004), pp. 8-17.

⁷ This is because even though the expected return increases over time, so does volatility.

⁸ B. J. Hall and T. A. Knox, "Underwater Options and the Dynamics of Executive Pay-to-Performance Sensitivities," forthcoming in the *Journal of Accounting Research*, 2004.

⁹ B. J. Hall, "Transferable Stock Options (TSOs) and the Coming Revolution in Equity-based Pay." See also B. J. Hall and K. J. Murphy, "The Trouble with Stock Options."

¹⁰ B. J. Hall and K. J. Murphy, "Stock Options for Undiversified Executives," NBER Working Paper No. 8052, December 2000, and *Journal of Accounting & Economics*, Vol. 33, No. 1 (February 2002), pp. 3-42.

¹¹ B. J. Hall and K. J. Murphy, "Option Value Does Not Equal Option Cost,"

WorldAtWork Journal, Second Quarter 2001, pp. 23-7.

¹² For an argument that executive pay is too high because CEOs extract rents too easily from pawn-like boards, see L. Bebchuk, J. Fried, and D. Walker, "Managerial Power and Rent Extraction in the Design of Executive Compensation," NBER Working Paper No. 9068, July 2002, and *University of Chicago Law Review*, Vol. 69, No. 3 (Summer 2002), pp. 751-846.

¹³ See B. J. Hall, "Six Challenges in Designing Equity-based Pay."

¹⁴ See B. J. Hall and K. J. Murphy, "The Trouble with Stock Options."

¹⁵ Some of this criticism is appropriate in my view, but some of it is based on the false logic that options created the accounting scandals. However, the perverse behavior of executives was caused by equity holdings (not necessarily options) combined with weak disclosure rules. Options have no special ability to create temptations toward gaming.

¹⁶ For evidence and analysis of this issue, see B. J. Hall, "Transferable Stock Options (TSOs) and the Coming Revolution in Equity-based Pay."

¹⁷ They also shortened the maturities of these options so that Microsoft shareholders also would gain in the transaction.

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