

TOWARD RATIONAL TREATMENT OF STOCK OPTIONS: THE BABY AND THE BATHWATER

Comments on International Accounting Standards Board Exposure Draft 2 (ED-2), Proposal re Stock Options

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Recent events have illustrated all too dramatically the possibilities for abuse—and indeed the actual abuse—of stock options by some entrenched management. These opportunities for abuse include manifestly undesirable incentives for artificial inflation of short-term earnings to increase the value of the options upon exercise, with immediate sale of stock by the executives (“pumping and dumping”). They also include the frequency with which directors serving on compensation committees authorize large—(in the view of critics) excessively large—option grants to top executives, particularly when the directors approving such compensation (and the consultants advising such directors) have been handpicked by the executives receiving the option grants. Moreover, some critics have also decried the large rewards current option programs can provide to executives who have accomplished little or nothing for their firms, but benefit greatly when the stock price of their particular company rises, carried along by advances in the entire stock market.

Many of these criticisms are valid and merit serious consideration. Certainly, recent examples of illegal or questionable actions by a small number of senior executives can readily be

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recounted. Against this background of potential for abuse and the well-publicized examples of actual abuse, stock options seem to have become a lightning rod for blame surrounding business failures, fraud and the current downturn in the stock markets. At the same time and perhaps as a result of the whipping boy status of stock options, there has been groundswell of public opinion supporting the expensing of stock options in the belief that it will serve as a fix for these problems. We believe, however, that careful and dispassionate evaluation of the proposal shows that the expensing of stock options will neither “fix” nor reduce any of the identified problems. Moreover, we will show that the rush to expensing of all such stock options, rather than ameliorating the terms of the options programs themselves, threatens to undermine one of the most powerful instruments currently available for reconciliation of the incentives and goals of management with those of stockholders, employees and the society in general.

It should be made absolutely clear that the reason for our opposition to universal expensing of stock options is not a desire to preserve the *ancien régime* and to protect any unwarranted benefits that it offered to those who were its special beneficiaries. On the contrary, we will propose a number of substantial amendments to the terms and conditions under which stock options are granted. While these proposals are outside the purview of the IASB and should, rather, be considered by exchanges, governments or other regulatory or market bodies, our proposals are intended to alter and limit the opportunities and incentives for the abuse of stock options rather than adopting changes that merely give the appearance of eliminating abuse while in fact threatening to exacerbate the problems by impeding use of the instrument most capable of keeping them in check.

Our opposition to universal expensing of options rests on two fundamental beliefs. First, the empirical research to date leads us to conclude that the grant of employee stock options

imposes no net economic cost upon either the firm or its shareholders. Second, we are also driven to conclude that universal expensing of stock options would fail to meet the objective in the preamble to ED-2: “The primary objective of financial statements is to provide high quality, transparent and comparable information to help users make economic decisions.”² On the contrary, we will show that a wide range of different option valuations will be consistent with generally accepted option-pricing techniques. Moreover, we will argue that firms will be induced to make a variety of alterations in the terms of option contracts so as to reduce the charge against earnings that may be required. We believe that the result will be that financial statements will become less comparable rather than more so and that final earnings per share numbers will become less useful to economic decision makers.

We believe that our suggestions, unlike a regime of universal expensing of stock options, will yield widespread benefits. We are convinced that our proposal will benefit stockholders and employees by providing effective instruments for the prevention of the scandals associated with the past misuse of executive stock options. In the long run, the interest of those who have been in a position to derive questionable profits from the old arrangements can be served effectively only by unqualified commitment to new arrangements that will adequately protect the interests of those whose financial welfare is management’s responsibility. Thus, all the affected parties stand ultimately to gain and gain substantially from the fundamental changes in the terms and conditions of stock option grants that we propose.

We are not unmindful of the public sentiment in favor of expensing employee stock options. Nor are we unmindful of the fact that the positions we take in these comments are likely to be unpopular in some sectors. In these comments, however, we attempt to bring logic and economic analysis to bear upon the issues raised by ED-2 without regard to public sentiment.

² ED-2, page 7, underlining ours.

Summary of Proposals and Conclusions.

This report offers the following conclusions:

1. Stock options constitute one of the most powerful instruments available to help reconcile of the self-interest goals of top management with those of stockholders and employees. Consequently, any change in accounting procedures or pertinent rules that impede the use of all types of stock option arrangements will only exacerbate the problems that can result from managerial incentives that may be inimical to the interests of stockholders and employees. The proposed universal expensing of stock options can be expected to impede the use of stock option arrangements. Thus, rather than curing the problems that underlie the proposal for expensing of stock options, such measures can be expected to exacerbate the problem of inadequate alignment of interests of stockholders and management.
2. In addition to aligning the interests of management and shareholders, employee stock options can also provide significant incentive to management and employees to work “harder and smarter.” The powerful incentive effects of stock options can readily be observed in the work ethic of employees of many high tech companies, where options programs are often broadly based, extending to all employees of the firm. The stories of employees working late into the nights and sleeping under desks are legion in the high tech sector.
3. If the grant of options succeeds in its purpose and leads to additional growth in the firm’s long-run earnings, the result should be no dilution of the earnings

available for the other stockholders; on the contrary, earnings per share will be higher than they would otherwise have been and both managers and shareholders will benefit.

4. Note that in this case the option does not have an opportunity cost for either the firm or its shareholders. The result is fundamentally different from the case where an option is sold to a third party where neither positive agency nor incentive effects exist.
5. There exists no correct method of evaluation of the costs of employee stock options, even approximately. We agree with ED-2 (p. 70) that failure to recognize an expense is not rectified by explanatory material included in the footnotes to the statements. But we also recognize that “a big aspect of the recognition criteria is that the item can be measured with reliability.”³ We are convinced that it is not possible to make reliable estimates of option expense. This will especially be so if option grants in the future will be of the “performance” type and with additional restrictions on the ability of the executive to sell the optioned shares. Because there are a variety of possible and ostensibly defensible ways to estimate the value of option grants, extensive experience in arenas such as rate regulation of public utilities indicates that an attempt to require such an evaluation will certainly lead to the invention of methods of evasion of effectiveness of the pertinent rules, and can be depended upon to generate disputes and costly litigation. This will only add to the undesirable consequences of an option expensing requirement, whose primary cost to society will be the weakening or destruction of this most promising tool

for bringing the incentives of top management into line with those of stockholders, employees and the public generally.

6. Imposing impediments to the use of stock options to enhance managerial incentives to work assiduously for the future welfare of the firm is not a rational way to deal with the problems that beset the exercise of managerial responsibility. Any such step will indeed amount to throwing out the baby with the bathwater.
7. Nevertheless, the problems at issue are real and important. These include the incentives for management to adopt accounting procedures that overstate company earnings, the incentives for managerial focus on very short run performance of their firms and neglect of critical long-run considerations, and overly generous compensation of managements even when there is little reason to conclude that their presence has materially improved the firm's performance.
8. Although outside the scope of the IASB's charter, these problems are best attacked directly by making advantages of the issue of stock option to management contingent on several provisions only some of which are currently prevalent: (a) that exercise of those stock options should not be permitted for some substantial period, say five years, after they are initially offered; (b) that the stock options be performance based, meaning that they be contingent on performance by the firm that exceeds that of the relevant portions of the stock market or of the firm's own past record, with the amount of gain to the executive proportioned to the magnitude of the superior performance; (c) that any such grant of options to management be subject to approval by the

³ ED-2, page 70, paragraph 3C272.

independent members of the firm's Board of Directors and by the firm's shareholders; (d) that executives be required to hold the shares exercised for a substantial period of time;⁴ and (e) that sale of such shares by top management be made public promptly.

9. Stock options granted on these terms will not only constitute a dramatic change in the incentives of management in the desired direction, but it can also be expected to reduce any resulting dilution in the earnings of the firm's other stockholders.

The Crucial Issue: Incentives for Coordination of Stockholder and Managerial Interests

The problem of divergence between the interests of stockholders and management is inherent in the corporate form of organization of the firm that is designed to make it possible to elicit funding from a large number of sources – its many stockholders. This organizational form was adopted in order to overcome the impediment to growth stemming from the limited financing generally available to partnerships and individual proprietorships. But the resulting dispersion of corporate ownership makes management by the proprietors unworkable and necessitates the assignment of management to an essentially separate group, the hired management of the enterprise. The result, the separation of ownership from management that is a hallmark of the modern corporation, was recognized at least as early as the eighteenth century as a potential source of trouble.⁵ But only in the 1930s, with the work of Berle and Means,⁶ did

⁴ It will be desirable, however, to allow the executive to sell a portion of the shares exercised that will raise funds sufficient to cover the cost of buying the shares and paying the income taxes generated by the transaction. It may also be desirable to require that the holding period of the stock extend even further than the employee's tenure with the company, so as not to encourage executives to leave their jobs in order to unlock their holdings.

⁵ Thus, see Adam Smith, *The Wealth of Nations* (1776), New York, Modern Library, Pp. 699-700: "The directors of such companies, however, being the managers rather of other people's money than of their own, it cannot well be expected, that they should watch over it with the same anxious vigilance with which the partners in a private copartnery frequently watch after their own...Negligence and profusion, therefore, must always prevail, more or

the issue attract widespread attention. The fact is that the interests and motivations of the firm's management and its stockholders are not always entirely consistent and, sometimes, as has recently been demonstrated all-too-dramatically, the divergence can be extreme.

The problem does not arise only when a management is of questionable integrity. All decision makers, in any profession, are prone to being swayed to some degree by considerations of self-interest. There is, for example, at least one common characteristic of managerial compensation that makes this observation directly pertinent to the acquisition process. There is considerable evidence that managerial compensation levels, as well as managerial perquisites, are enhanced by expanded sales volume of the firm. That is, while a larger volume of sales with unchanged total profits offer little benefit to the firm's owners, they apparently can provide substantial additional benefits to management. For example, compensation consultants may adopt as a benchmark the magnitude of the firm's nonincentive compensation of the firm's managers to the compensation levels of other firms with similar assets and revenues. As a result, a tradeoff offers itself to a management driven by self-interest, making it tempting to sacrifice a modest amount of profit in return for an expansion of sales. The easiest way to achieve such a trade is through the acquisition of assets that are associated with large sales revenues but comparatively modest profits.

The fact is that persons who occupy positions of influence and responsibility in business management, as is true of any occupation, vary in their objectives and in their degree of dedication to the ostensible purposes of their task. Because of the imperfect consistency between the courses of action that most effectively promote the interests of management as distinct from those of stockholders, it is of critical importance for the long run success of the enterprise and its

less, in the management of the affairs of such a company." Note that this observation comes from an analyst who has often been considered a prime prophet of the capitalist economy.

contribution to the economy to adopt measures that minimize any such divergences in goals. As already noted here, stock options are one of the most promising instruments to achieve the goal of reconciling the interests of managers and shareholders. The rational objective of any program undertaken to modify the way in which stock options are used and accounted for in the firm's financial records should be improvement in the effectiveness with which they coordinate the goals of stockholders and management. The objective of such a change in regime should *not* be the creation of disincentives for the employment of stock options, a step that can only exacerbate the problem of lack of identity of managerial and stockholder objectives. Thus, expensing of option grants could have the unintended consequence of making the interests of managers and shareholders more divergent.

The work of even the most dedicated and trustworthy of business executives is surely impeded by the blatant and much publicized misbehavior of a small number of business executives that has led to doubts about the trustworthiness of all top management. Consequently, an incentive arrangement that patently serves to ensure that the interests of stockholders and management are parallel will be beneficial not only to the owners of the firm, but to management as well. Only by adopting arrangements that can restore investor confidence rapidly and effectively can management free itself of suspicion that can be expected to restrict its freedom of action and undermine its mandate.

In principle, compensation of management, a large proportion of which is made up of stock options, should bring managerial interests more closely into line with those of the stockholders whose property they manage. In theory the value of those options will depend upon the performance of the firm, thus leading the compensation of management to depend on the degree of success of their efforts to promote the achievements of the company. In reality, as we

⁶ See A.A. Berle and Gardiner Means, *The Modern Corporation and Private Property* (1932).

know, the stock option grants to management have worked rather imperfectly in achieving this goal. It has been suggested that one improvement in the treatment of stock options that is urgently needed is to require them to be expensed in the company accounts. We will show here, however, that rather than improving matters, expensing will only intensify the shortcomings of the current treatment of the option grants to management.

The Principal Agent Problem and Options as Instrument for Solution

The exposure draft, *ED 2 SHARE-BASED PAYMENTS*, correctly points out that current FASB standards provide for inconsistent treatment of various share-based employee compensation programs. Stock grants and so-called “performance employee stock options” are required to be expensed on a firm’s income statements. Traditional at-the-money employee stock options (ESOs), however, either may be expensed or merely disclosed in footnotes at the firm’s election under FASB guidelines. ED-2 argues strongly that ESOs can be measured with sufficient reliability that they should be recognized explicitly in the accounting statements of the firm. “The board concluded that, in principle, there is no reason to treat... (various)... employee share purchase plans differently” (BC11).

Conceptually, ED-2 makes an important argument: ED-2 believes there should be no difference in accounting treatment of the different variety of share-based employee compensation plans. It suggests that the acquisition of managerial services by the firm is simply the purchase of one of the inputs that the firm needs to carry out its activities. For example, if a firm should grant options as payment for the purchase of a commodity used in production, say a barrel of oil, the transaction should be recorded on the income statement just as if the company had purchased the oil for cash. Indeed, ED-2 suggests that the transaction can be broken into two separate parts: First, the company sells a call option to the oil company for cash. (Clearly,

the receipt of cash would need to be recorded on the balance sheet). Next, the company uses the cash to purchase the oil. (Clearly, the company would then make the entry “debit oil inventory” and “credit cash”).

In this comment, we will argue that two points are relevant. First, the grant of a vested share of stock is quite easy to value—it is simply the market value of the stock grant, perhaps adjusted for lack of liquidity. As we will show later, however, it is virtually impossible to put a precise value on a complex long-term stock option whose exercise is contingent on a variety of conditions. Second, there is a major difference between the grant of an option to an employee and the sale of an option to a third party such as an oil supplier or an investment banker, because of the incentive and agency effects of the former. We will deal with this crucial distinction first.

We can make the distinction we wish to draw with a real world example: Warren Buffet has suggested that the value of ESOs granted to Coca Cola employees can be easily and unambiguously valued. The company can simply request that several investment banking firms bid on the purchase of deferred options with terms equivalent to those granted to employees. Even if the terms of the two options were indeed equivalent, which they are not (for example, ESOs may be forfeited), we believe the effect on the Coca Cola Company would be entirely different. The holding of an option by an investment banker (or a subsequent financial investor) is fundamentally different than the holding of an option by an employee. In the latter case, *the firm benefits from important positive agency and incentive effects*. In the former case, the firm receives no such benefits. Hence, the cost, more particularly the opportunity cost, to the firm of the two transactions is fundamentally different.

The following sections of this report will contain a complete discussion of the relevant agency and incentive effects and their pertinence for the ED 2 proposals.

The Two Purposes of Stock Options

There may be many considerations that lead the management of a firm to undertake an issue of stock options to its employees. However, the literature recognizes two primary objectives of such a step and these must be understood if the relation between this action and cost is to be comprehended. The first of these two purposes is to provide the firm a substitute for some part of the compensation the enterprise would otherwise have to provide to the recipient employees. The second purpose is to solve what economic analysis describes as the principal-agent problem—the possible divergence between the interests of the management of a corporation and those of its stockholders.

The first of these purposes is straightforward. For example, consider a firm that is strapped for cash and subject to other financial difficulties. Suppose the firm locates an experienced executive with an outstanding track record in dealing with such problems. Such persons are not obtained cheaply, and the cash poor firm may not feel itself in a position to commit itself to providing the compensation needed to induce this individual to join it. Instead, it can offer that person stock options in lieu of a substantial portion of the compensation demanded. An agreement between the company and the individual can then be sought on the quantity of options that will serve as an appropriate equivalent of the foregone compensation. These options then serve as a substitute for cash payments to the individual in question. But as we will see presently, their status as costs to the firm are quite distinct.

The second of the two primary purposes of the issue of stock options is very different, though such an issue may well be undertaken to serve both objectives. As has already been emphasized here and as has long been recognized by economists and other observers, the modern corporation is characterized by separation between ownership and management. Unlike the

minuscule enterprise that is overseen by its proprietor, the large corporation's managers are, as it were, hired help who, if the arrangements are inappropriate, may choose to pursue their own agenda rather than those of the true proprietors of the firm.

Here, economists speak of the stockholders as the *principals* of the firm and the members of management as the *agents* of those principals. Clearly, without suitable precautionary measures, the principals have good reason for concern about the temptations for the agents, consciously or unconsciously, to give priority to their own interests rather than those of the principals. The recognized way to deal effectively with this dilemma is to modify the nature of the payoffs offered to the agents in such a way that brings their interests more closely into line with those of the principals. That is precisely what stock options are designed to do.

Stock options can achieve this result in a straightforward manner. Because the recipient of the options benefits from them only to the extent that the price of firm's stocks rises above its value at the time the options were issued (or rises more than do the stocks of comparable firms), the recipient members of management are given the incentive to strive as hard as they can to increase the value of those stocks. But that is precisely what serves the interests of stockholders.

The remainder of these comments deals with five major issues raised by the expensing proposal in ED-2. The first issue is that such expensing implies that there is a demonstrable economic cost to the company or its shareholders incurred by the issue of employee stock options, but further examination of the issue indicates that this may not be true, particularly when the options serve their incentive and agency purposes effectively. The second and third issues are whether employee stock options can be valued with any reasonable degree of certainty and whether the expensing of employee stock options increases the clarity and transparency of financial statements. Our concern is that expensing of employee stock options will have the

unintended consequence of making earnings statements less clear and less comparable. The fourth issue is whether expensing restricted stock is logical and appropriate, particularly while employee stock options are not subject to such a requirement. The fifth concern is whether given efficient markets it matters that employee stock options are expensed or merely disclosed.

Stock Options, Costs to the Firm and Cost to the Stockholders?

Is there a clear-cut cost, or even *any* net cost to the firm entailed in the issue of stock options to employees of the firm? Before getting to the heart of the matter, it is important to note that the issue of the options for either of the two purposes just described has an inherent offset that is beneficial both to the firm and its stockholders. This is obvious if the options are provided to offer the desired incentives to management – to deal with the principal-agent problem. If the options induce management to work harder – to create better products, to cut costs, to promote sales, or otherwise to contribute to profits and to the value of the securities of the corporation – then they clearly provide a benefit to stockholders. At most, any cost to stockholders that options are said to entail must be lower than that of any equivalent compensation, such as cash salary payments, that provides no incentives to the employee to align their interest with those of the shareholders.

Thus, any cost to the firm of the grant of employee stock options may well be offset, in part, in their entirety or even more than offset by any significant beneficial incentive effects the options provide. In addition, it is important here to distinguish also between a cost to a given body of stockholders and a cost to their firm. Even though the firm is the property of the body of its stockholders, a newly issued stock option, if it does nothing else, merely redistributes some of the firm's future earnings between the initial holders of its stocks and the new stockholders created by the options. Unlike an increased wage payment that, *ceteris paribus*, reduces the

firm's yearly net earnings, a new employee stock option that leaves all else unaffected preserves the firm's earnings unchanged.

To the extent that employees accept lower cash compensation as a result of the grant of employee stock options, such grants also help to preserve the firm's cash. To the extent that the employees later exercise their options after a rise in the stock price of the firm, the employees pay the firm the fair market value of the firm's stock price at the time of the option grants. In neither event does the firm incur any direct cost.

The Argument that the Cost of an ESO is its "Opportunity Cost"

Those who favor expensing of stock options in their accounting treatment on the grounds that the grant of an employee stock option does entail a cost after all, and that cost is the opportunity cost that is thereby incurred. Economists have coined the term "opportunity cost" to refer to a cost of some action that entails no direct cost outlay, but that nevertheless causes the individual that undertakes the action to forego some income or wealth, leaving him no better off than he would have been if he had made the corresponding dollar payment. For example, an individual who purchases a small shop for \$300,000 with cash he has just inherited but which he could have put into government bonds yielding a 7 percent return, foregoes just as much net income as if he had been able to invest the money at the same interest rate. The 7 percent foregone, then, is the opportunity cost of the investment.

It is then argued that while the grant of the stock option entails no direct payment by the firm to the employee who receives it, it does incur an opportunity cost. That cost takes the form of the lower price the firm can obtain for its securities as a result, as the purchasers of its stocks and bonds realize that the value of the shares has been diluted because of the increase in the number of claims upon the company's earnings.

It may then be argued that the purely dilutive effect of the issue of a stock option does have a clear opportunity cost because it reduces the price of the firm's shares since it reduces the price below what it otherwise would have been. But the evidence indicates that in general the issue of employee stock options has incentive and agency effects that work in the opposite direction (see text and appendix below). That is, the grant might indeed incur an opportunity cost of the sort that is cited if the acquisition of the right to acquire the securities at the given price were the end of the story. But there is, emphatically, more to the scenario. For also, inseparably entailed in the ESO grant is its incentive effect which, if successful, leads the recipients to act in a manner that increases the firm's income per share. Thus, suppose that the dilution effect of an ESO grant reduces earnings per share by 2 percent, but the incentive effect raises those earnings by 3.2 percent. Evidently there has been no net decrease in security value. On the contrary, earnings per share will have risen 1.2 percent. On average, the evidence does indicate that in reality these incentive and agency effects in general more than offset the dilutive consequences. Therefore it would appear that any such net opportunity cost must typically be zero or negative. That is, typically there can be no such opportunity cost at all.

It may be argued that there is an opportunity cost of a different sort, that an employee stock option issued when the price was \$10 but exercised when the stock price reached \$50 entailed an opportunity cost of \$40 to the firm. But that is no different than making the absurd claim that there is an "opportunity cost" to the firm of raising cash by selling a share on the open market at a time when its price was \$10 rather than postponing the issue to some future distant date when its price may prove to be \$50. Clearly, these choices are not reasonably interpreted as substitutes for the firm. For example, for the firm that needs money today it is not an equivalent choice to obtain it, say, four years later. Indeed, this purported opportunity cost calculation is

even more severely damaged by the fact that the rise in stock price may itself well be a partial consequence of the issue of the options.

The factual issue, then, is whether the detrimental dilutive effect of the grant of an employee stock option on the corporation's shareholders and the evaluation of the stocks in the marketplace at large are considered to outweigh their benefits to the firm. If the detrimental effects of such option grants were considered greater than the offsetting positive effects, then the price of the firm's stock would fall and this would indeed result in an economic cost to the firm—an increase in the firm's cost of raising equity capital. On the other hand, if the shareholders and the market were to consider the positive benefits of the option to outweigh the dilutive effects, then the firm's stock price would not fall but would remain unchanged or possibly even increase. If this latter expectation were in fact shared by shareholders and the marketplace, then the grant of employee stock options would have no net cost to the firm—neither an opportunity cost nor any other form of a net cost—because the firm's cost of raising equity capital would remain the same or even decrease as a consequence of such grants. Which of these two possibilities characterizes reality is, of course, a matter to be settled by empirical evidence. Fortunately, the data on this subject have been investigated in a number of studies.

Empirical Work Estimating the Effect of ESO Grants on Share Prices Generally Show the Effect to be Positive, Implying that there is No General Net Economic Cost to the Firm.

As has been shown above, employee stock options in principle have both positive and negative effects on share prices. They tend to reduce earnings per share when measured on a “fully diluted basis,” i.e., accounting for their potential exercise. But they also have beneficial incentive and agency effects. As discussed above, the issue of options does not reduce the firm's earnings but rather potentially redistributes a portion of the equity claims on the firm from existing shareholders to the option holders. In theory, the existing shareholders are willing to

give up some equity to the employees on the presumption that the beneficial incentive and agency effects stemming from the options will cause the firm's value to grow more quickly by an amount sufficient to benefit those current shareholders.

There nonetheless is a possibility that the issuance of options can indeed constitute an economic cost to the firm. This is so because the firm's shareholders and the market may believe that the dilutive effect of employee stock options is greater than the anticipated benefits from the agency and incentive effects. If the shareholders and the market were to believe the detrimental effects to outweigh the beneficial effects, then the firm's stock price would fall in response to this expected diminution in the value of the firm. If stock prices declined, then the firm's cost of raising equity capital would be increased. An increase in the firm's cost of raising equity capital can legitimately be interpreted to constitute a net economic cost to the firm. On the other hand, if the market anticipated that the beneficial effects of options would equal or outweigh the dilutive effects, then the firm's stock price would remain unchanged or even increase above that which would otherwise have prevailed. If the stock price remained unchanged or increased, then the firm's cost of raising equity capital would remain unchanged or would decrease, with the issuance of the options then having no net economic cost to the firm.

Whether the issue of employee stock options then constitutes such an economic cost to the firm is an empirical question that must be examined by study of the effect of employee stock options on stock price. A number of investigators have attempted to measure empirically whether in their net effect employee stock option grants tend to raise or lower stock price in reality. In the Appendix, we briefly review some highlights of the empirical work. We conclude that while these studies produce different estimates of the effect of option grants on share prices,

most find a positive effect on shareholder wealth and none of the studies provides convincing evidence that the net effect on share prices is negative.

Some Methodological Problems

There are some very difficult conceptual and methodological problems involved in all of the analyses we will review which are important for the current discussion because they help to show why the value of an ESO grant is so difficult to estimate. What we seek to determine is whether the value of options granted has a positive or negative influence on share prices. Certainly, we know that ordinary expenses tend to depress share prices. For example, if a firm's earnings decline with increased expenses we can expect the stock price to suffer. But we have seen above that the fair value of options granted can only be estimated and the estimates used are far from precise. One method used in the studies is to estimate the value via a Black-Scholes formula as used in the footnotes of the financial statements of the different firms. Unfortunately, since each firm estimates the value of option grants using different assumptions, there can be substantial differences among option expense estimates even for similarly situated firms. Even more fundamentally, the best yardstick available to measure the value of employee stock options—the Black-Scholes option pricing model—cannot and does not measure the value of employee stock option grants with any reasonable degree of precision or economic certainty.

There is an even more serious statistical problem to be overcome. Most of the empirical studies attempt to determine the effect of option expense on share price. For this purpose, a number of the empirical studies have used firms' Black-Scholes based option expense estimates from the firms' FAS 123 footnote disclosures. But as noted earlier, the amount of option expense estimated via the Black-Scholes model depends on the price of the shares. As a result, these empirical studies entail a statistical difficulty known as a "simultaneity problem." Option

expense may influence share price but share price also influences option expense. Different studies deal with this problem in different ways. Indeed, in some studies, despite the technical knowledge and sophistication of the investigators, the investigation is driven to estimate option expense in a patently artificial way, and it is hard to know if the empirical results are simply artifacts of the particular method of estimation.

Finally, many of the statistical studies attempt to show the relationship of stock prices to a set of explanatory variables, usually the following: earnings, book value, *expected future growth*, and the fair value of option grants. If a negative sign is obtained on the option expense variable (i.e., a greater value of options issued is associated with lower stock prices), at least one study has interpreted the result as indicating that option grants depress share prices. That is because the procedure of the analysis in effect first eliminates the influence of earnings, book value and expected growth upon stock price and attributes to the ESOs that portion of the stock value that remains after this deduction. But, this means that all *that is being measured is the negative dilutive effect of the options, giving no credit for their beneficial consequences*. That is because the positive incentive effects are already implicitly separated out and discarded, since the expected growth variable, in effect, already captures the beneficial effect of the options on future performance.

It is clear that none of these studies can be considered dispositive. Nevertheless, the substantial number of papers written on the subject fortunately do suggest a tentative conclusion. The majority of the studies that have attempted to measure the net effect of ESO grants on the firm and its shareholders find that ESO programs have a positive net effect on share prices. Because of the considerable measurement and econometric problems that beset all the analyses it is not surprising that some studies are unable to measure any statistically significant effect at all.

But, with one exception, those that succeed in obtaining statistically significant results find the effect of ESOs on share prices to be positive. There is one study (Hillegeist and Penalva – see Appendix, below) that appears to find a significant negative effect on share prices from the value of options granted. But the results of this exceptional study are not robust. Moreover, that study finds that *when firms increase their ESO grants, they experience better future performance*. Thus, even accepting their findings at face value, the net effect of ESO grants is a beneficial one for the firm and its shareholders.

We conclude that much of the evidence is indeed consistent with the possibility that the incentive and agency effects of stock options may be so substantial and favorable to the stockholder that employee stock options generally constitute a net benefit rather than a cost. Many of the available studies indicate that stockholders predominantly are net beneficiaries when firms choose to issue options to their employees. While the empirical evidence cannot be deemed unambiguous in indicating whether there is a net benefit to shareholders from the issuance of employee stock options, the preponderance of the empirical investigations do reach the conclusion that in general employee stock options offer gains to stockholders. While we cannot claim that a statistically significant affirmative net benefit has been shown beyond any reasonable doubt, we can, however, unambiguously conclude that there is no measurable net economic cost to the firm or its shareholders from the issue of employee stock options (i.e., to a reasonable degree of economic and statistical certainty, the positive effects of employee stock options are at least equal to the negative dilutive effects to shareholders).⁷

⁷ As we were preparing our comments, Professors Joseph Blasi and Douglas Kruse of Rutgers University and Aaron Bernstein published a new book on stock options. See Blasi, Kruse and Bernstein, “In the Company of Owners: The Truth About Stock Options and Why Every Employee Should Have Them” (Basic Books 2003). In their book, the authors conclude, as we have, that the positive incentive and agency effects of employee stock options exceed their potential dilutive effect upon shareholders.

Stock Options are Not a Demonstrable Cost of the Firm or the Shareholder, Merely a Redistribution of Ownership Between the Current Shareholders and Management.

The final consideration here, however, is perhaps the least widely recognized. This is the fact that the issue of employee stock options must be recognized as only constituting a *redistribution* of benefits between initial stockholders and the new prospective stockholders who have obtained this position by their receipt of the options. It does not result in any reduction in the overall size of the firm's total earnings pie. Rather, it only affects the way in which that pie is sliced and divided up among future shareholders. And that is so even if the options lead to absolutely no change in the performance of management and the firm's future prospects. This is markedly different from the effect of, say, a rise in the cash wages of the company's current employees which, if it does not affect their performance, must result in a net reduction of the total profits of the firm. The latter is a cost to the firm in that, without offsetting benefits, it reduces the size of the earnings pie. The stock option issue, in contrast, leads to no such reduction in the earnings of the firm.

The point in all this is that it would be erroneous to take the cost of a direct expenditure such as a cash wage cost to be equivalent to that of an employee stock option. And there is simply no valid empirical evidence showing that the grant or exercise of an employee stock option constitutes a measurable economic cost to the firm. The empirical literature to date shows that the issue of employee stock options normally either has no measurable cost to the firm or shareholders, or that such an issue actually benefits the firm and its shareholders, as shown by the studies summarized in the appendix to these comments. It simply cannot defensibly be claimed that the issue of employee stock options is a normal cost to the firm from the empirical research performed to date.

Can We Measure Employee Stock Option Expense With Any Degree of Certainty?

ED-2 argues that the criterion for recognition of option expense (i.e., deduction of the expense on the financial statements) is that the expense can be measured “reliably,” and that the value of ESOs can reliably be measured. We will show next that this conclusion is incorrect.

The value of long-term stock options granted to employees cannot be estimated from the economic evidence with a reasonable degree of certainty. The disciplines of economics and finance do not provide a method by which the value of long-term employee stock options can be measured with any degree of accuracy, particularly given the long-term nature of such options and the variety of special restrictions involved. The Black-Scholes model, the most sophisticated tool available for the purpose, works extraordinarily well for periods up to three months in maturity. But even for plain vanilla exchange-traded options, the Black-Scholes model works less well for options with maturities from six months to one year. And for longer periods it is inherently unreliable and inaccurate.

It is frequently suggested that developments in financial asset pricing theory now make it possible to measure the value of stock option grants with reasonable precision. A remarkable Nobel Prize winning contribution by the late Fisher Black, Myron Scholes and Robert Merton is the construction of an option pricing model—commonly known as the Black-Scholes model.⁸ This model is now widely used by option traders to price traded options at the Chicago Board Options Exchange and other exchanges. This model does an excellent job of predicting the actual prices at which the most active marketable short-term options actually trade in the market. But that is not enough for the task of valuing ESOs.

⁸ Both Professors Black and Scholes and Professor Merton cited a paper we wrote with Richard Quandt on the valuation of convertible securities in their Nobel Prize winning articles. William J. Baumol, Burton G. Malkiel, and Richard E. Quandt, “The Valuation of Convertible Securities,” *Quarterly Journal of Economics*, Vol. 80, February 1966, pp. 48-59.

Some Aspects of Option Pricing Models

Since, in the discussion that follows, it will be necessary to refer back to some aspects of the option pricing model, it will be useful here to review certain concepts. A call option gives the owner of the contract the right but not the obligation to purchase a share of company stock at a fixed price (the exercise or strike price) on or before a certain date (the expiration date). The buyer of an exchange-traded option pays an amount called the option premium to obtain such a right. The premium (less commission) is given to the option seller (or writer) who takes on the obligation to sell the shares to the option buyer at the exercise price.

Intuitively, we can understand what determines the size of the option premium. Premiums will be larger the longer the time to expiration since more time will be available for an event favorable to the option holder to occur. Premiums will be larger the higher the price of the underlying stock. Obviously an option on a one dollar stock can't be worth more than one dollar (otherwise, you would just buy the stock for one dollar) while a three month option on a hundred dollar stock can be worth five dollars or more. Interest rates also influence option premiums since the option buyer puts up less money than the person who buys the stock outright.

The Crucial Role of Volatility

The most important factor influencing option premiums is the volatility of the underlying shares. Options are worth more if the underlying stock is more volatile. To see why this is so, consider the following example: Suppose we have two stocks currently selling at \$30 per share. Suppose that Stock A is very volatile and that in three months time each of five future values is equally likely ranging from a low of \$10 to a high of \$50. Stock B is less volatile and the equally likely range of future values runs from \$20 to \$40. Consider now how much a 3 month call option with an exercise price of \$30 is worth. At expiration, the option will be worth the

difference between the actual stock price and the \$30 exercise price. Thus, if the stock sells at \$30 or less, the call option expires worthless. But if the stock sells at \$40 at the end of the period, the option has an “intrinsic” value of \$10 since the holder could simultaneously exercise the option at \$30 and sell the stock in the open market at \$40. We then can see clearly from the exhibit below that in the case where market prices go up, the high volatility Stock A has larger option payoffs than the less volatile Stock B. Of course, A can also decline more than B, but in that case the option simply will not be exercised.

The Value of Volatility

| High-Volatility | | Stock A | | | |
|-----------------|------|---------|------|------|------|
| Stock price | \$10 | \$20 | \$30 | \$40 | \$50 |
| Option payoff | 0 | 0 | 0 | 10 | 20 |
| Low-Volatility | | Stock B | | | |
| Stock price | \$20 | \$25 | \$30 | \$35 | \$40 |
| Option payoff | 0 | 0 | 0 | 5 | 10 |

It follows then that option buyers will pay more for options on more volatile stocks. And indeed they do. The standard option pricing formula developed by Black and Scholes takes account of this. The most important variable from which options derive value, according to the Black-Scholes model, is the volatility of the underlying stock.

The Problem of Estimating Volatility

While the mathematics underlying the Black-Scholes option pricing model is somewhat advanced and complex, the important point is that the future volatility of the underlying stock plays a crucial role in the model and that estimating future volatility is extremely difficult and becomes increasingly even more difficult the further out in time one attempts to estimate

volatility. The Black-Scholes option pricing formula can provide reasonably good measures of the value of exchange-traded, short-term put and call options. Variants of this model produce value estimates for short-term (such as one to three months) options that are not only extremely close to one another, but that also track with considerable precision the actual market prices of these instruments. This is so because recent past volatility tends to be reasonably persistent over the short term. It is important to point out, however, that for longer-term (such as six months to one year) exchange-traded options, the Black-Scholes formula can produce a wide range of estimates, and actual market prices of traded instruments vary substantially from their predicted values. Unfortunately, volatility over the longer term is notoriously difficult to estimate and the longer the time the option has to run, the greater the difficulty in arriving at an estimate of its value. This inherent limitation in option pricing models is exacerbated when one moves from so-called “long-term” exchange traded options (i.e., six months to one year) to employee stock options with lives measured in years rather than months.

The problem stemming from the fact that stock volatility is not constant over the longer term has long been recognized by market practitioners. Traders tend to put less reliance on Black-Scholes estimates as the time to expiration increases. The problem is widely recognized and is discussed in texts on option pricing such as the leading text by John Hull:

Pricing errors caused by a nonconstant volatility increase as the time to maturity of the option increases. A nonconstant volatility has relatively little effect when the time to maturity is small, but its effect increases as the maturity of the option increases. The reason is easy to understand. Just as the standard deviation of the stock price distribution increases as we look farther ahead, so the distortions to that distribution caused by uncertainties in the volatility become greater as we look farther ahead.⁹

⁹ John C. Hull, *Introduction to Futures and Options Markets*, 3rd Ed., 1999, Prentice-Hall, Chapter 17 “Biases in the Black-Scholes Model”, pp. 382-383.

We see that even for longer-term exchange traded options (i.e., six months to one year), the Black-Scholes formula does not yield precise estimates.

Complications Arising From the Special Features of Employee Stock Options

When one adds the complications that executive stock options do not vest immediately and are subject both to forfeiture and restrictions on the sale of the option, it clearly becomes virtually impossible to put a precise estimate on the option's value. Each of these factors violates the assumptions underlying the Black-Scholes model. Moreover, employee stock options generally have durations of five to ten years and, as noted above, the Black-Scholes formula has considerable difficulty even in pricing the longer-term six month to one year exchange-traded options.

It is widely recognized in the finance literature that the Black-Scholes model is unsuitable for employee stock option valuation, as noted in a recent article by Richard Friedman:

Several inherent problems plague the Black-Scholes model in determining employee stock option values. For example, it was developed for European-style options, which are exercisable only at their expiration date with no vesting and transferability restrictions. Almost all U.S. employee stock options can be exercised at any time after vesting (usually by year seven or eight) and are rarely transferable. In addition, employee stock options can almost never be sold or traded, unlike publicly traded options.¹⁰

Adjusting Black-Scholes for the Special Features of Employee Stock Options

It is, of course, possible to attempt to adjust the Black-Scholes model to account for many of the special features of employee stock options. Mark Rubinstein has proposed a rather ingenious model to value a fixed number of employee stock options granted with strike prices equal to the current market price.¹¹ The model, however, uses 16 input variables, many of them difficult to estimate, and a wide range of estimates can be derived from the model. It is

¹⁰ Friedman, R., 2001. "What Are My Options Worth?" Article on the web site of MyStockOptions.com.

particularly important, as Rubinstein expressly states in his article, that he is not attempting to take into account incentive effects of the employee stock options, but rather is merely seeking to value the options granted to the employees. Rubinstein points out that the inherent subjectivity of the estimates required can allow firms to report values half or double those for other similarly situated firms. Rubinstein also considers use of “minimum value” accounting—the primary method suggested by the Financial Accounting Standards Board for private companies. But even use of this minimum value method can lead to demonstrably inconsistent results for similarly situated companies as the terms of the options can easily alter the features of the employee stock option grant in a way that adopts zero as the minimum option value.¹²

One can get an idea of how sensitive option values can be to the terms of the contract and the assumptions involved by an examination of the table below. Rubinstein shows that by changing the maturity of the option period and the volatility assumption, option values can range from \$11.56 to \$38.49 for a \$100 stock.

Sensitivity of
Black Scholes Option Values
(At the money option – stock price \$100)

| | |
|------------------------|---------|
| Ann Volatility 25% | \$11.56 |
| One Year to Expiration | |

| | |
|------------------------|-------|
| Ann Volatility 35% | 38.49 |
| 10 Years to Expiration | |

Source: Mark Rubinstein, “On the Accounting Valuation of Employee Stock Options” *The Journal of Derivatives* (1995) pp. 8-24. With the high and variable volatility that has recently been experienced in our equity markets, the disparities that can arise in valuation of employee stock options are likely to be even wider.

¹¹ Rubinstein, M., 1995. “On the Accounting Valuation of Employee Stock Options.” *The Journal of Derivatives*, pp. 8-24.

We conclude that it is impossible to measure the value of stock options granted with a fixed strike price to employees with any degree of precision or economic certainty.

The Valuation of Employee Stock Options in Private Companies Presents Additional Problems

If it is difficult to estimate expected stock-price volatility for public companies, it is virtually impossible to do so for private companies. ED-2 suggests a number of possible methods by which the volatility might be measured, but they will produce very large variations. The Board acknowledged that resulting estimates of the value of ESOs will be subjective (BC-140, page 38).

In the final analysis, ED-2 recognizes how difficult it will be to come up with comparable values that will permit analysts to compare different companies. Indeed, the Board did not even specify that the Black-Scholes model had to be used. Presumably a variety of binomial option-pricing formulas might be employed. The exposure draft states:¹³

The Board decided that it is not necessary or appropriate to prescribe the precise formula or model to be used for option valuation. There is no particular option pricing model that is regarded as theoretically superior to the others, and there is the risk that any model specified might be superceded by improved methodologies in the future. In any event, there should be little difference between the results of the various models. Although the Black-Scholes model is the most well-known model, there does not seem to be any reason to specify that this model should be used rather than another. Entities should select whichever model is most appropriate in the circumstances, provided that the model selected takes into account the features of the options concerned, as discussed further below.

We find it difficult to believe that with a broad variation of models and assumptions and with different means of estimating volatility that analysts will be able to make better comparisons among companies by having such “expense” data. On the contrary, information about the number of shares reserved for future option exercise and the potential dilution represented will

¹² Rubinstein, *op. cite*, p. 19.

¹³ ED-2, page 36, BC131.

be the most relevant information needed to make useful comparisons among companies and such data are available without any expense entry on the income statement.

Performance Based Employee Stock Options Present Even More Difficulties for Accurate Valuation.

We believe that performance based options provide a better way for aligning the interests of management and the firm's shareholders. However, tying the terms of employee stock options to the economic performance of the firm imposes additional problems upon valuation of the options. Firms have innumerable alternatives for alteration of the terms of employee stock options to connect management's payoff from the options to the overall economic performance of the firm. In a free market, different firms will make different choices in order to align the interests of shareholders and management more effectively. One simple method is to increase the number of shares subject to the options if the firm meets or exceeds certain performance targets. Another method is to index the strike price to a broad market index (i.e., the S&P 500) or to an industry performance index. Additional methods are available, and each modification requires an increase in the complexity of the valuation model and data inputs required to value the options properly. The differences in terms of the performance options provided by different firms will provide different incentives, with various degrees of effectiveness, to management and will provide different challenges for valuation of the employee stock options.

If expensing of stock options is mandatory, by altering the terms of performance options, firms will be able to manipulate and manage the amount of expense they recognize from such grants. Various adjustments in the terms affect the valuation of the expense recognized differently. In fact, Rubinstein provides an example of an option contract where the strike price

increases by the ratio of the rate of interest divided by the dividend payout return through the vesting date. In this case the option value pricing would produce a value of zero.¹⁴

The different terms of performance-based options have a combination effect on the value of the performance based options and the different incentives provided to management. It may be possible to construct various different performance-based options that show the same valuation but have different effects on management's incentives and results.

Will the Expensing of Employee Stock Options Lead to More Clarity and Transparency in Financial Statements?

The expensing of ESOs will not lead to more accurate indications of the firm's true earnings and offer investors a more accurate evaluation of the firm. On the contrary, expensing will invite costly, time consuming and misleading pseudo calculations that will be designed to camouflage the true performance of the firm whose earnings are lower than might have been hoped for. Moreover, the terms of option grants will be altered so as to produce a calculation that lowers the "charge" required against earnings. Expensing options will not make the financial statements of corporations more comparable. Indeed, quite to the contrary, the expensing of options is likely to make financial statements even more difficult to understand and compare.¹⁵ Expensing of options is likely to lead to an even more distorted picture of a company's financial condition. It will provide a most desired opening for precisely those creative accountants whose actions the ED 2 proposals are designed to circumscribe. In particular, expensing of all employee stock options will introduce the ability to use performance-based options to manipulate the reported expense while introducing additional complexity as different firms provide different incentives to management by different terms in the employee

¹⁴ Rubinstein, *op. cite*, p. 19.

stock options (even where the reported expenses may be the same). Depending on what experts are employed to validate the option valuation calculation, a wide range of values (incomparable from company to company) will be used.

ED-2 argues that, even if the valuation of the options is only an approximation, it is better than ignoring their ostensible cost altogether (see ED-2, p. 74, BC286, 287). Holding aside for a moment the fact that there is generally no net economic cost to the firm or its shareholders associated with ESOs, it is critical to recognize that a decision requiring firms to report an expense figure for ESOs will lead to reduce the reliability and comparability of financial statements, rather than the reverse. Because the true expense of a stock option grant cannot be measured, because there exist so many questionable ways to “estimate” the correct figure, and because the terms of the options can be manipulated to produce a wide variation in the calculated values, using standard valuation techniques, one can confidently expect that a decision to expense stock options will quickly give birth to a new and large-scale activity: creative accounting enlisted to produce that expense figure that is most desired by the calculating party or its clients or sponsors. Instead of shedding light on the underlying reality about which the public is entitled to be informed, expensing of options will give rise to further and more intractable distortion and obfuscation. This is not mere conjecture nor an excessively cynical view of behavior. Rather, experience in other arenas confirms that it is an all-too-accurate description of what will emerge.

¹⁵ ED-2 argues that zero does not make companies comparable either. But footnotes showing the percent of outstanding shares reserved for option grants—i.e. potential dilution—gives quite an accurate picture of how firms differ in their policies regarding option grants.

Expensing of Employee Stock Options Will Not Provide Meaningful Information about the “Cost” to the Firm or the Shareholders.

The expensing of employee stock options will not enhance the transparency of financial statements. As discussed above, there is no demonstrable cost related to the issuing of employee stock options. In addition, employee stock options are notoriously difficult to value with any accuracy. Further, the expensing of employee stock options creates divergences between the net income results reported by a company and other measures of profitability such as free cash flow from operations.

We also question whether expensing of options will provide investors with a truer picture of the financial health of companies. For example, high tech companies often have broad-based ESO programs that award stock options to most if not all employees. It stands to reason that if ESOs must be expensed, the companies granting the most ESOs will, all other things being equal, report larger expense figures corresponding to options. As has been widely reported by the business news media, if a number of high tech companies had expensed options based on the basis of the figures reported in footnotes under FAS 123, in many of the companies that reported profits these reported profits would have been completely wiped out by the FAS 123 expense calculations. Yet, as was also reported by the business news media a number of the high tech companies with very large FAS 123 option expense figures have also been generating massive quantities of cash flow from their operations. In some specific instances that we have examined, the requirement of the expensing of options using FAS 123 computations would have resulted in reported losses by some companies on their financial statements while generating successful results by any reasonable measure. We strongly question whether it is not fundamentally misleading to report companies to have incurred substantial losses when they have in fact been

generating substantial cash flows from operations and significantly increasing their holdings of cash and short-term investments.

It is Not Possible to Obtain a Defensible Valuation of a Stock Option Granted to Management.

ED-2 argues that the primary objective of financial statements is to provide high quality, transparent and *comparable* information to help users make economic decisions (italics *ours*). There are many cost elements for which data are not readily knowable or where the information is not known at all. There are even cases in which it is unknowable in principle. As a result, accountants frequently and quite justifiably are driven to adopt simplifying proxies that can be used for calculation purposes, even when they demonstrably have little or no relation to the underlying reality. A prime example is a fully allocated cost that ostensibly purports to specify which portion of some total outlay that inextricably benefits several outputs of a firm is to be considered the responsibility of each of the different benefiting outputs. Since there is no way of assigning the unassignable, the accountant is driven to adopt some arbitrary criterion, such as the values or the weights of the different products, as the basis for the apportionment of the unassignable costs and calculation of the “full costs” of each of the individual products. Similarly, conventions such as straight-line depreciation, or even various forms of accelerated depreciation, permit easy workability but may have little relationship between the numbers generated by the calculation and the underlying economic reality. True values, actual costs and relevant practices of reality, however, cannot be determined in this way.

There are many basically intractable problems that prevent proper evaluation of the cost to the firm of the grant of stock options to its management, as we have seen. Of course, many accounting items are difficult to estimate, e.g., depreciation allowances, reserve to bad debts, pension fund expenses, etc. But the incorporation of additional complexities into an item open to

considerable manipulation is unlikely to meet the objective of the exposure draft of improving the quality, transparency and comparability of accounting reports. One does not improve the quality of accounting statements by adding a further expense term that is of questionable significance and which is inherently impossible to estimate with a reasonable degree of certainty. In determining, depreciation allowances, at least we know the magnitude of the initial cost of the investment. With ESOs, we are not even certain if there is any real expense at all.

The most fundamental impediment to an evaluation of the “expense” of ESOs is inherent in the purpose of the grant: its hoped-for incentive and agency effects, leading to substantially improved performance by management. If management is provided with stock options whose market value when offered to outsiders would be a million dollars, for example, but when offered to management leads to enhanced effort that increases the present value of the firm’s earnings by \$20 million, what is the true cost of those options to the firm and its stockholders? And, as we have seen, the studies that have appeared in the economic literature do indeed support the observation that employee stock options have an incentive effect sufficient or more than sufficient to cover their market value (see also the appendix to these comments). The empirical studies carried out so far report that the issue of employee stock options has either no effect or a positive effect on stock price. Thus, the empirical studies establish, at a minimum, that the issue of employee stock options has no general and measurable economic cost to the firm.¹⁶

But Is It Not Illogical to Expense Grants of Restricted Stock and Performance Options and Not Expense Regular ESOs?

ED-2 argues persuasively that it is illogical to expense grants of restricted stock and so-called “performance options” but not expense at-the-money ESOs. ED-2 states, “the board

¹⁶ See also Blasi, Kruse and Bernstein, “In the Company of Owners”, *supra*.

concluded there is no reason to treat employee share purchase plans differently.”¹⁷ We agree with the logic of the statement but would point out what we believe to be the serious dilemma posed by the question.

Consider first, performance options, where the value of the grant will depend upon certain criteria such as an excess stock price performance over that of peer companies and/or the stock market as a whole. As we indicated above, we believe that such options are better instruments for motivating and compensating managers. It is ironic that current accounting rules make it undesirable for firms to issue such options because they need to be expensed while regular ESOs do not. This produces the kind of unintended consequence in which accounting rules prevent a desirable outcome. But as we explained above, the valuation of performance options is even more difficult than the valuation of regular ESOs. Since we urge encouragement of the adoption of such options as a critical contribution to protection of stockholder interests, we would argue that both types be shown not as expenses on the income statement but rather as the number of optioned shares that represent potential dilution and that should be used in the denominator of the (fully diluted) earnings per share calculation. Certainly, both types of options should be treated consistently.

What about restricted stock? We would first point out that restricted stock has an immediate value that can be determined far more precisely than ESOs. ESOs only provide a contingent claim on future earnings to the employees whereas restricted stock is immediately dilutive for the existing shareholders. The base valuation is simply the value of the shares, with some discount then applied to adjust for the restrictions on sale. We would agree that sufficient reliability in the calculation is possible to justify treatment of such grants as expenses on the income statement. Moreover, we would agree that restricted stock grants also can help to

¹⁷ ED-2, page 9.

ameliorate the agency problems we described above. However, restricted stock does not provide the same degree of motivation as do ESOs. For example, suppose an ESO was considered to be valued at one-fifth of the market price of the underlying stock. This would imply that per dollar of expense the executive has five times the motivation to improve performance over what he/she would have if restricted stock were granted rather than ESOs. ESOs are then particularly effective because they are leveraged. Certainly, no confusion will result if the number of shares outstanding and the potential dilution from ESOs are clearly and visibly presented in the financial statements. And it is not true as ED-2 implies that failure to expense stock options makes financial statements incomparable. The shares currently outstanding and available for issue under option programs gives users of financial information precisely comparable data that are needed to judge the value of different corporations.

In Efficient Markets, Why Does it Matter Whether Employee Stock Options are Expensed or Disclosed?

As economists, it is necessary for us to offer a few observations on the role of the efficient market hypothesis in our analysis. After all, there is evidence indicating that in practice markets are indeed efficient, at least to a degree, meaning that their underlying mechanism, together with the participation of informed investors, drives them to reflect and take appropriately into account all pertinent information. This would appear to mean that the market's valuation of a firm can be relied upon to take into account whatever stock options have been granted to management, to value those options appropriately and to reflect correctly the implications for the prospects of the company and its stockholders. Taken to its extreme, the hypothesis that markets are efficient would appear to imply that there can be no hiding place; that whatever is done to conceal or disguise the consequences of the issue of such options, the truth, or its consequences, will out. If this were true, it presumably would not matter whether

stock options were or were not expensed in the firm's accounts. The firm's market valuation would instantly emerge and prove correct, whichever approach to stock option accounting were employed.

But this is surely too much to expect of a market, even one that is reasonably efficient. First of all, in reality, adjustments take time in even an effectively efficient market. News does not always reveal itself instantly, particularly when it is deliberately concealed. Thus, sale of stock by members of top management, driven by inside information, may not be known immediately by the market, so that a decline in the firm's market value, that an openly-reported sale might otherwise herald, can serve to delay the reduction in stock prices. After all, that is surely the hope of those who seek to dispose of their substantial security holdings unobserved.

More generally, recent revelations suggest that attempts to conceal or disguise overvaluation of the firm have hardly been uncommon. Moreover, the attempts seem sometimes to have been successful, as when employees were persuaded to continue to invest their retirement funds in the company, when it was known to management that the market price of its securities was drastically inflated and in danger of collapse. After all, the efficient market hypothesis denies neither that one can fool all of the people some of the time nor even some of the people all of the time. That, ultimately, is one of the main reasons why it is important to improve the accounting rules and to get the improvements right. Above all, it indicates why it is critically important to avoid assiduously changes in the rules that give the appearance of improvement but that really threaten to be more misleading and manipulable than the current procedures.

Changes in the System are Urgently Needed but Expensing of Options will Exacerbate the Problems

The logic of the basic notion that stock options can help to impart consistency to managerial and stockholder interests remains persuasive, and no one seems have proposed a substitute mechanism that promises to serve the purpose effectively. However, no more than modification of the terms on which employee stock options are provided to management is required to remedy their current shortcomings. Several steps can evidently serve the purpose:

Base grant of stock options on performance.

It has rightly been argued that in a rising stock market even the managements of firms that substantially underperform the market or their industry will automatically gain from any stock options they have received, simply as a result of the fact that a rising market lifts most securities. To avoid rewarding of underperformance it is possible to tie the grant of stock options and, in particular, the quantity granted to the individual executive to two metrics: (1) the grant can be related to the performance of the firm's securities in comparison to that of the market as a whole, via an index such as the S&P 500, or to the performance of related firms; (2) the grant can also be supplemented when there are increases in the firm's growth performance, for example, in accord with any excess of profit or growth performance over and above its own past record. The purpose of indexing the company's stock values to the market as a whole or to that of related industries should be clear—it is to ensure that management is not rewarded for what has been contributed not by its own efforts, but rather by market conditions that had nothing to do with the activities and decisions of the firm's executives. The second metric just suggested for use in managerial stock-option compensation, which can be described as a growth-acceleration metric, has a double purpose. First, it protects the interests of management during a period when improvement of an underperforming asset first begins, and during which some

degree of underperformance is likely to persist, and may therefore otherwise drag down the management's compensation, despite what it is accomplishing. Second, it provides a direct incentive for management to devote adequate attention to the firm's growth objectives, whose importance is evident and has already been emphasized here.

Holding Period and the Long-Run Welfare of the Firm.

It has frequently been asserted that managements tend to devote too much of their attention to the firm's short-run performance and too little to what it will achieve in the longer run. Whether this is true and, if so, what the causes may be, are not the general issues here. However, it is clear that the grant of stock options to management without any steps to deal with this issue does invite inattention to the long run. If the magnitude of management's reward is heavily dependent on transitory surges in stock values, the consequent distortion of incentives is evident. But this shortcoming, too, has an evident remedy. The distortion can be prevented by tying managerial stock-option payoff more closely to the firm's longer term achievements. This can be done by an agreement with management, as a precondition for the grant of stock options, which requires them to hold for some pre-specified and reasonably protracted period of time any company stocks that they have acquired by the exercise of their options. Since the exercise of an option may be a taxable event for the manager in some jurisdictions, an exception can be made that allows the manager to sell enough of stock acquired upon exercise to defray his/her tax liability as well as the initial cost outlay required to buy the stock. This arrangement evidently will make the options serve as an instrument of systematic *long-term* investment in the firm by top management, and this can confidently be expected to ensure attention to the firm's performance over appropriately protracted periods.

Together, these few modifications in the arrangements that currently are widely prevalent should serve to ensure that true managerial accomplishment is properly rewarded, and that spurious or very evanescent gains provide no benefits to management. At the same time it can help to restore stockholder confidence in management as the dependable guardian of their interests.

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Concluding Comments

As we have suggested, there have been abuses in the use of employee stock options. In some instances, employee stock options have induced managers to undertake actions with only short-run benefits rather than the long-run programs consistent with permanent increases in shareholder value. Rewards in many cases have been excessive and, during the ebullient stock markets of the late 1990s, executives were generously rewarded, as all stocks tended to rise, even if the managers' performance was well below average. But we have argued that such abuses are easily remedied without a change in accounting treatment. We believe that independent directors who serve on compensation committees must be sensitized to their responsibility to their shareholders to prevent excessive managerial compensation. And we support measures that will require all option programs to be submitted to a vote of the entire stockholder body.

We also believe that option programs need to be reformulated in at least two important respects: First, executives who are granted options should be required to continue to hold the

stock upon exercise (with one possible exception—allowing them to sell enough shares to provide the capital needed to buy the shares and to pay any related income taxes). The holding period should extend well beyond the executive's tenure with the company so as to insure that the executive is motivated to undertake actions in the long-run interest of the firm and its shareowners and to avoid the creation of a perverse incentive that induces executives to leave their firms. Second, the options should be performance based, that is their value should depend on outperformance by the firm of some objective index such as the performance of stocks in a comparable industry group. Options granted on these terms will better align managerial incentives with the long-run interests of the shareholders and can also be expected to minimize any resulting dilution in earnings per share.

We vigorously oppose, however, the proposal for universal expensing of options. Such a policy threatens to undermine one of the most powerful instruments available to reconcile the incentives of managements with those of its shareowners. Moreover, to the extent that a policy of universal expensing discourages the use of options (and therefore the ability of cash-strapped entrepreneurial new companies to attract talent), society as a whole will be harmed. It is not an accident that the fastest growing and most dynamic companies in the economies of most nations—those responsible for important advances in productivity—are the companies that make the greatest use of options in broad based employee compensation schemes.

Our most important objection to universal expensing is that expensing is virtually certain to have the unintended consequence of making accounting statements less comparable (rather than more so) and less transparent rather than more useful to financial analysts and investors. Current option-pricing models such as the Black-Scholes model and a variety of binomial pricing models can lead to a wide range of estimates of the worth of option grants. Moreover, a

requirement of universal expensing will lead to a vast number of variations in the design of option contracts whose purpose will be to minimize the accounting charge required. It is possible to alter option terms via the choice of a reference stock index or a particular interest rate that must be exceeded so as to lower drastically the required charge against earnings. As Rubinstein has shown (see above) in the case of traditional ESOs it is not difficult to maneuver their valuation so as either to increase or reduce their supposed value by as much as 50 percent. And in the case of performance-based options it is even possible to reduce their purported valuation to zero. We are convinced that an expensing requirement will invite complex changes in options contracts and devious manipulation of accounting figures. The result will be less comparable and less useful accounting statements. Indeed, it is quite likely that financial analysts will begin to look at “earnings before options expense” in the same way that they now estimate EBITDA in an attempt to put different accounting statements on a more comparable basis.

The objective of ED-2 is to improve accounting statements in a manner that makes them more transparent and comparable. We agree that companies with large numbers of shares reserved for option exercise should be distinguished from firms with few or no outstanding options exercisable. But the clear and unambiguous way to distinguish such firms is to show prominently the quantity of shares reserved for option exercise (as well as for the shares that may be issued in connection with convertible bond issues, etc.). Moreover, earnings per share on a fully diluted basis should be clearly indicated. But universal expensing of stock options is very likely to have consequences both unintended and inconsistent with the objectives of ED-2. Adding an inherently imprecise and easily manipulable expense item to the income statement is neither good accounting policy nor good public policy.

We are also convinced that once one removes the disparity in the treatment of options that are performance based and those that are not, the superiority of the former for the objectives of the firm and for the public interest will automatically lead to a substantial movement toward use of a performance basis. The firm's directors will be driven in that direction by the resulting prospects for improvements in the firm's performance and its reduced risks, and by the ensuing stockholder pressures for such a move. Adjustment in the number of options offered can make the change attractive to management as well. On such grounds, in addition to the likelihood that expensing will make the accounts far less informative and comparable, it seems clear to us that the appropriate accounting change is elimination of the handicap that currently besets performance options, and modification of their accounting treatment to match that currently applicable to options that are not performance based, with no change in the treatment of the latter.

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Appendix: A Review of the Pertinent Empirical Studies

Below we summarize the major conclusions of the empirical studies that attempt to measure the effect of ESOs on stock prices.

- a) James Brickley, Sanjai Bhagat, and Ronald Lease, “The Impact of Long-Range Managerial Compensation Plans on Shareholder Wealth,” *Journal of Accounting and Economics*, Vol. 7, 1985, pp. 115-129.

The authors examine the stock price effect of the announcement of long-range compensation programs. Such an analysis is called an “event study.” In long-range compensation programs the authors include stock option plans as well as grants of stock appreciation rights (SARs), restricted stock, etc. No significant immediate effects (over the next two days) either positive or negative are found. There is some uncertainty, however, over the time needed for details of the plan to have reached the market. Therefore, they examine price effects (relative to the market) over longer periods such that as from the board approval date to the day after the SEC received news of the plan (the SEC stamp date) and from two days after the SEC stamp date through the day after the shareholder meeting approves the plan. The price effects for these longer periods are positive and statistically significant. The authors conclude that on average, these plans tend to increase shareholder wealth.

- b) Richard Defuseo, Robert Johnson, and Thomas Zorn, “The Effect of Executive Stock Option Plans on Stockholders and Bondholders,” *The Journal of Finance*, Vol. XLV, No. 2, June 1990, pp. 617-627.

The authors find that the “event” constituted by an executive stock option plan announcement is followed by *positive* stock price reactions and *negative* bond price reactions. They conclude that executive stock options do improve managerial incentives but also may induce a wealth transfer from bondholders to stockholders as managers take on more risk. To the extent that bond prices decline in response to the announcement, the decrease in bond price implies that there can be an increase in the cost of debt capital for the firm; however, the

accompanying stock price increase demonstrates that stockholders believe that the beneficial effects of the stock options outweigh any increased interest costs that will reduce the corporation's earnings .

- c) David Aboody, "Market Valuation of Employee Stock Options," *Journal of Accounting and Economics*, Vol. 22, 1996, pp. 357-391.

Aboody finds that the total value of all options issued has the expectable dilutive effect on share price after netting out of any favorable incentive effects on earnings. But the value of options recently granted (and which have not yet produced favorable incentive effects on earnings) has a positive effect on share prices. In the study, Aboody makes his own estimates of the value of options granted. He also uses the FASB method of calculating compensation expense and finds it has no additional explanation power.

- d) Douglas J. Skinner, "Are Disclosures About Bank Derivatives and Employee Stock Options' Value Relevant?" *Journal of Accounting and Economics*, Vol. 22, 1996, pp. 393-405.

This paper criticized the methods employed in the original (1996) Aboody study and led to some of the changes employed in a second study by Aboody, *et. al.* Skinner argues, however, that methodological issues continue to affect all studies that attempt to estimate the value of option grants (current and past) on share value. Skinner suggests that "event studies" are the appropriate method for determining the effect of stock-option grants on share prices.

- e) Lynn Rees and David Stott, "The Value-Relevance of Stock-Based Employee Compensation Disclosures", *Journal of Applied Business Research* Vol. 17, No. 2 (Spring 2001) pp. 105-116.

The paper examines the association between employee stock option compensation expense as stipulated by FAS123 and firm value. The authors conclude that "the incentive benefits derived from ESO [employee stock option] plans outweigh the costs" and that the option forms of employee compensation "is not a typical expense." Employee stock option "expense"

as measured by FAS123 affects firm value (i.e., stock price) positively and statistically significantly “in the opposite direction from other income statement expenses.”

- f) David Aboody, Mary Barth,¹⁸ and Ron Kasznik, “SFAS 123 Stock-Based Employee Compensation Expense and Equity Market Values,” July 2001, GSB Stanford University Working Paper.

The authors find the expected negative dilution effect of employee stock option grants on stock prices if the incentive effects of options on expected future earnings are included in the analysis as a separate predictor. But if the expected future earnings term is omitted, then SFAS 123 stock-based employee compensation expense has a positive effect on stock prices. Thus, the authors suggest that the net effect of stock options (considering both the negative dilution and positive incentive effects) is positive but statistically insignificant (i.e., no measurable net economic cost to issuance of the options).

- g) Timothy Bell, Wayne Landsman, Bruce Miller, and Shu Yek, “The Valuation Implications of Employee Stock-Option Accounting for Computer Software Firms,” July 2001 Working Paper.

The authors use a sample of 85 computer software firms and conclude that employee stock options are valuable to the shareholders of software companies. They suggest that the appropriate way to determine how market values reflect option grants is by treating them as an (intangible) asset. Most important for the issue considered here, the variable treating employee stock options as an asset has a significantly positive effect on the firm’s market value. Indeed, the authors find that “ESO assets” appear to be priced in the market at levels higher than other net assets of the firm.

¹⁸ In citing this study we should make it clear that Mary Barth is a member of the IASB. Thus, it would be disingenuous for us to imply that either she or, through her, the IASB accepts any of the conclusions or evaluations offered in this submission. In particular, it should not be suggested that, while the study in which she participated indicates along with the other studies that ESOs do not depress the share prices of the firm, this implies anything about her views on the desirability of expensing of employee stock options.

- h) J. Core, and D. Larcker, “Performance Consequences of Mandatory Increases in Executive Stock Ownership,” Working Paper, Forthcoming *Journal of Financial Economics*, 2002.

The authors examine the performance of firms adopting “target stock ownership” plans. These plans are typically mandated by boards to increase executive stock ownership. They find that firms adopting target ownership plans have lower industry adjusted returns over the two years prior to adoption. One and two years after the adoption of the plan, however, they find that firms with these plans outperform a matched sample of similar firms.

- i) Stephen Hillegeist and Fernando Penalva, “Performance and Valuation Consequences of Employee Stock Options,” Working Paper, January 2002.

Unlike previous studies, the authors find that the fair value of employee stock options granted during the year has a negative and statistically significant effect on share price. They find no association, however, between the fair value of outstanding options granted in prior years and share prices. Their finding that option grants negatively affect share prices does not continue to hold, however, when the entire data set (including outliers) is considered, and when a different measure of options expense is used.¹⁹ In any event, even accepting the Hillegeist and Penalva findings at face value, we cannot interpret their study as showing a *net* cost from employee stock option plans. This is so because their analysis shows that future stock performance is enhanced by firms that increase their employee stock option grants. Thus, the *net* effect on shareholder

¹⁹ We were curious why the Hillegeist & Penalva working paper results were inconsistent with all of the other empirical analyses. Upon inspection of their regression specification and statistical techniques, we noted several statistical techniques that were questionable. We asked Dr. Atanu Saha of the Analysis Group to contact Professors Hillegeist and Penalva and to obtain their data set. We then asked Dr. Saha to re-run their particular Hillegeist and Penalva regressions after correcting the shortcomings we perceived in their particular specification of the regression equations and the statistical techniques. After adjustment for these items, the Hillegeist & Penalva regressions are consistent with the other empirical studies and show that the relationship between estimated option expense and share price is not statistically significant from zero. In other words, the revised Hillegeist & Penalva regressions show that there is no measurable economic cost to the issuance of the options. The details of the work performed by Dr. Saha are available from Analysis Group.

wealth is likely to be positive rather than negative. Indeed, the authors conclude that firms in general are *below* their optimal level of employee stock option grants.

Considering the studies just reviewed as a group, it is clear that they provide a consistent picture, though not one that is definitive. The role of employee stock options is complex and continues to be investigated in the economic literature. Much remains to be learned about the subject. But a good deal is well understood about the topic. We know that their issue can, at least in principle, be beneficial both to the issuing firm and to all of its stockholders. We know, consequently, that they need not entail a cost, as the term is normally and appropriately interpreted. We know that even the value of the employee stock options is not in general accurately and unambiguously determinable. Consequently, a proposal to base the calculation of their purported costs on such a valuation can hardly be expected to provide figures that can pretend to reliability. There is even less logic to a proposal to base evaluation of the purported costs of employee stock options on the spread between the exercise price and the current market price of the stock at the date of exercise, an approach that is wholly indefensible from an economic standpoint.

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