

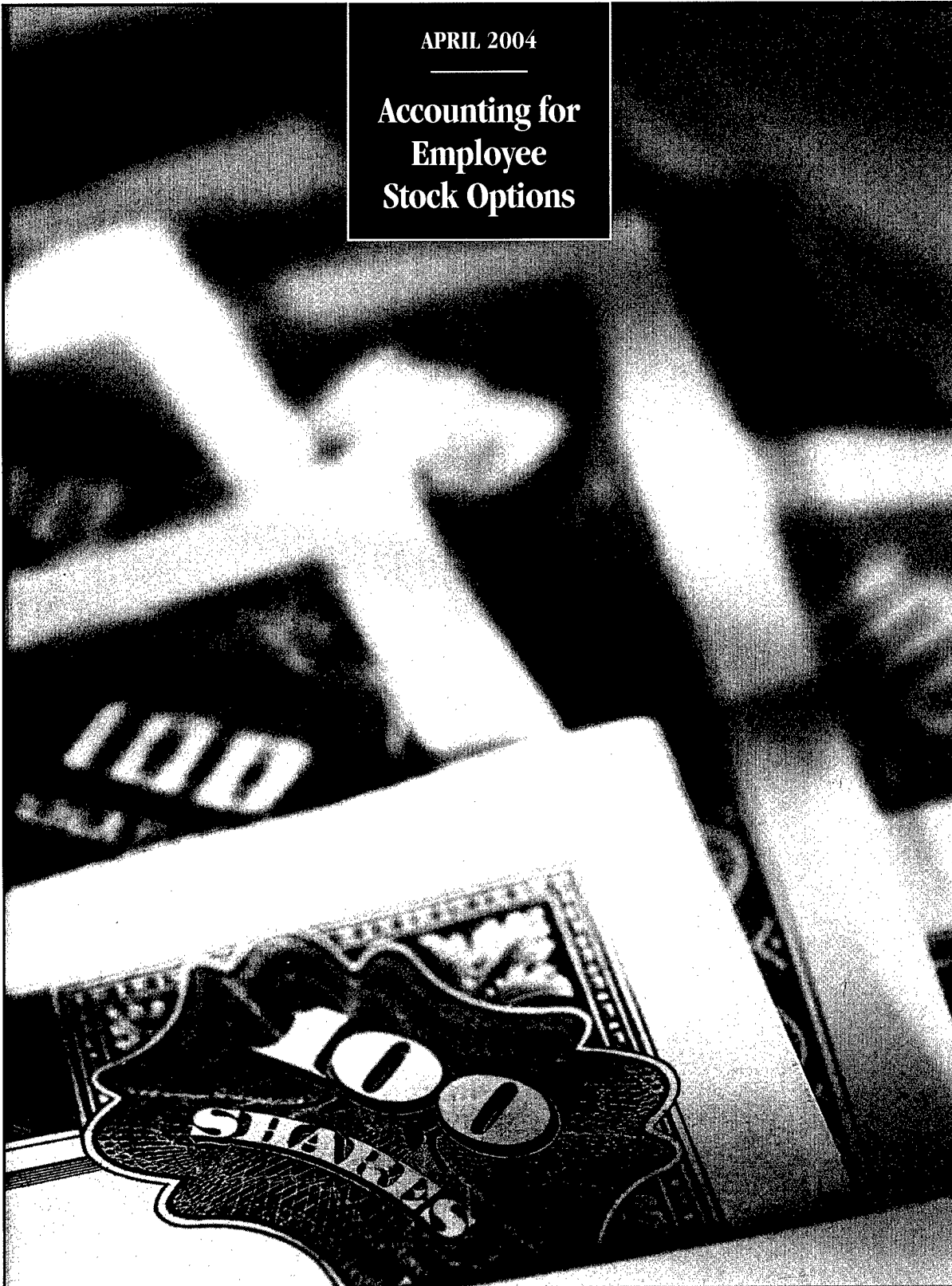
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Accounting for  
Employee  
Stock Options



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# **Accounting for Employee Stock Options**

April 2004



## Preface

In March 2003, the Financial Accounting Standards Board (FASB) began reconsidering the accounting standard for equity-based compensation. The accounting board released an exposure draft for a revised standard on March 31, 2004. That revised standard would require firms to recognize the fair value of employee stock options as an expense, as was first proposed by FASB more than 10 years ago.

This Congressional Budget Office (CBO) paper assesses whether, under the current accounting standard, firms that grant employee stock options without recognizing an expense overstate their reported income. The paper presents the relevant issues, describes the current standard for employee stock options, compares the intrinsic value and fair value methods of measurement, and weighs the potential economic effects of revising the current standard. The report was prepared at the request of Congressman Brad Sherman in his capacity as a member of the House Committee on Financial Services.

Judith S. Ruud of CBO's Microeconomic and Financial Studies Division prepared the paper under the direction of Roger Hitchner and Marvin Phaup. Early investigation of the subject was conducted by Douglas Gruener, a summer intern at CBO. George J. Benston of Emory University and Deborah Lucas of Northwestern University reviewed a draft of the paper and provided valuable suggestions. Wendy Kiska, Angelo Mascaro, David Torregrosa, Philip Webre, and Thomas Woodward, all of CBO, also provided helpful comments.

Christine Bogusz and Leah Mazade edited the paper, and John Skeen proofread it. Maureen Costantino prepared the paper for publication and designed the cover, and Annette Kalicki produced the electronic versions for CBO's Web site ([www.cbo.gov](http://www.cbo.gov)).

Douglas Holtz-Eakin  
Director

April 2004

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## Summary

Current accounting standards require firms to recognize as an expense (deduct from their income) the value of the compensation they provide in the form of employee stock options. For some types of employee stock options they grant, however, firms can choose how to measure that value. They can use the immediate-exercise value (intrinsic value), which is usually zero, or an estimate of the market value (fair value), which is almost always greater than zero. As a result, firms may assign a cost of zero to that portion of compensation made up of grants of employee stock options. That practice results in overstatement of reported net income.

In March 2003, the Financial Accounting Standards Board (FASB), the private-sector organization that sets standards for financial accounting and reporting in the United States, announced that it would reconsider the accounting standard for equity-based compensation. On March 31, 2004, FASB released an exposure draft that proposes revising the standard to require—not merely encourage—firms to recognize the fair value of all employee stock options as compensation expense for financial-reporting purposes. The prospect of that revision has generated considerable debate.

Some analysts argue that requiring firms to recognize as an expense the fair value of employee stock options is unnecessary or ill-advised. Underpinning those arguments are different assumptions about whether the information on fair value is currently transparent to users of financial reports.

Analysts who believe that information about fair value is adequately transparent consider it unnecessary to change the current standard. Although information about fair value is not reflected in net income, it is already available to investors in the notes to firms' annual financial reports. (In those notes, firms must disclose the fair value of the grants of employee stock options for which they recognized the intrinsic value.)

Other observers maintain that recognizing the fair value of employee stock options is ill-advised because that in-

formation is not now transparent and making it so could have negative consequences. Recognition might reveal new information to investors that could drive down the stock prices of firms that grant employee stock options. That result could in turn damage the economy, some analysts argue.

Still other analysts oppose the recognition of the fair value of employee stock options on more basic grounds. For example, they assert that the value of those options cannot be estimated reliably and that recognizing an estimate of the expense would reduce the accuracy of reported net income. Others oppose recognition because they do not view the granting of employee stock options as an expense to the firm at all but simply a redistribution of equity.

The Congressional Budget Office's (CBO's) analysis of this accounting issue comes to the following conclusions:

- If firms do not recognize as an expense the fair value of employee stock options, measured when the options are granted, the firms' reported net income will be overstated.
- Changes in the value of employee stock options after they have been granted as well as the exercising of those options are irrelevant to a firm's income statement because they affect shareholders directly, not the firm itself. Specifically, they transfer wealth from existing shareholders to holders of employee stock options.
- Although complicated to calculate, the fair value of employee stock options may be estimated as reliably as many other expenses.
- Recognizing the fair value of employee stock options is unlikely to have a significant effect on the economy (because the information has already been disclosed); however, it could make fair value information more transparent to less-sophisticated investors.



# Accounting for Employee Stock Options

**F**or more than 50 years, organizations that set accounting standards have espoused the principle of measuring the fair value of employee stock options provided as part of a compensation package and recognizing that value as an operating expense. Businesses that adhere to that principle subtract the options' fair value—the estimated amount for which the options could be bought or sold in a current transaction—from their revenue in determining their earnings, which are reflected on their income statements (see Box 1). The information provided by the income statements and by other financial reporting and disclosures is used by investors and others outside the firms who are seeking to assess their profitability.

Proposals to require firms to recognize the fair value of employee stock options as an expense—the current standard encourages but does not require that practice—have been put forward in the past, provoking significant controversy. The central concern driving such proposals was expressed as early as 1953 by the Committee on Accounting Procedures (the accounting standards board of that era):

To the extent that such options and rights [that is, options to purchase or rights to subscribe for shares of a corporation's capital stock] involve a measurable amount of compensation, this cost of services received should be accounted for as such. The amount of compensation involved may be substantial and omission of such costs from the corporation's accounting may result in overstatement of net income to a significant degree.<sup>1</sup>

The issue of requiring firms to recognize the fair value of employee stock options was raised most recently in March 2003 when the Financial Accounting Standards Board (FASB)—the independent private-sector board

that currently sets U.S. financial accounting standards—announced that it planned to reconsider the current standard for equity-based compensation. This Congressional Budget Office (CBO) paper describes the issues that surround the debate about changing that standard, analyzing the current accounting requirement, the arguments advanced for and against requiring fair value recognition, and how such a change might affect the economy. The report also compares the methods now being used to value employee stock options, presenting a detailed example to illustrate the general effects of those methods.

## The Key Issue: Intrinsic Versus Fair Value

In 1993, FASB recommended a change in the accounting treatment of employee stock options. It proposed that firms recognize the fair value of the options (measured when the options are granted) as an expense on their income statements over the period in which employees perform the services for which the options serve as compensation. (That period usually corresponds to the vesting period—the waiting period most companies require before the option holder may exercise the option.) However, FASB's proposal encountered severe opposition, mostly from the managers of firms granting such options. Those managers preferred to continue to use the accounting treatment permitted under what was then the current standard—that is, to recognize the intrinsic (or immediate-exercise) value of employee stock options rather than the options' fair value.<sup>2</sup> Their preference derived at least in part from the fact that at the time options are granted, the intrinsic value is almost always less than the fair value and thus a smaller amount is subtracted from firms' earnings.

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1. Committee on Accounting Procedures, *Compensation Involved in Stock Option and Stock Purchase Plans*, Accounting Research Bulletin No. 43 (1953), Chapter 13B.

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2. That treatment was established in 1972 by FASB's predecessor, the Accounting Principles Board, in its Opinion No. 25, *Accounting for Stock Issued to Employees* (referred to hereafter as Opinion 25).

**Box 1.****The Accounting Framework**

There are two basic accounting statements, the balance sheet and the income statement. Each provides information on a firm's financial condition to investors and others outside the firm (creditors, for example).

The balance sheet is a summary of the firm's net worth at a point in time. It shows what the firm owns (assets) and how the firm is financed (liabilities and shareholders' equity). The accounting identity of the balance sheet is that assets equal liabilities plus shareholders' equity (what shareholders would have after the firm had discharged all its obligations).

The income statement shows the firm's performance for a specified period, such as a quarter or a year, measured by its earnings. For the income statement,

net income equals revenue minus expenses. In general, revenue is the economic benefit generated by the firm's activities, and expenses are the associated costs. Compensation and depreciation are examples of two types of expenses.

An accrual basis of accounting underlies most financial reporting. Under accrual accounting, revenue is recognized when it is earned and can be objectively measured. When possible, expenses are matched with revenue and are recognized in the same period. If an expense applies to multiple periods and cannot be definitively matched with revenue, it is apportioned in some manner over those periods. If the expense cannot be matched with revenue, it is recognized when it is incurred.

The intrinsic value of an employee stock option is the extent to which an option's strike price—the specified price at which the underlying stock may be purchased—is below the stock's current market price. For example, an option to buy one share of stock at a strike price of \$30 per share on a stock whose current market price is \$35 has an intrinsic value of \$5. Employee stock options may be structured so that their intrinsic value is zero—in the previous example, by setting the option's strike price at \$35 or more.

The opposition engendered by FASB's proposed change strengthened until intervention by the Congress appeared likely, so the accounting board amended its proposal to encourage—but not require—recognition of the fair value of employee stock options.<sup>3</sup> However, FASB did require that firms electing to use the intrinsic value method disclose the effects of fair value recognition on their income.

3. The Senate passed a resolution against the proposal. See amendment 1668 to the Consumer Reporting Reform Act, S. 783, 103rd Congress, 1st sess. (1993).

**The Current Accounting Standard**

The current standard, which is spelled out in FASB Statement No. 123 (FAS 123), effectively allows companies to choose between two methods of valuing compensatory stock options:<sup>4</sup> they can recognize as an expense either the options' fair value or their intrinsic value. If they elect to use the intrinsic value method, as most do, they must disclose the estimated fair value in the notes to their financial statements.<sup>5</sup> As mentioned earlier, FAS 123 encourages use of the fair value method—which recognizes

4. Employee stock options may be compensatory or noncompensatory. Compensatory stock options are granted to employees in exchange for their services. Noncompensatory plans, such as employee stock ownership plans, are intended to serve other goals, such as promoting employees' loyalty or raising capital without having to make a public offering of stock. FAS 123 applies only to compensatory stock options.

5. For example, when Cisco reported its quarterly earnings in November 2002, it disclosed that those earnings would have been 60 percent lower under "fair value" accounting. (Specifically, its earnings of \$618 million would have been reduced to \$250 million if the \$368 million in options it had granted had been recognized as an expense.) See Scott Thurm, "Cisco Discloses Expense Data on Stock Options," *Wall Street Journal*, November 22, 2002, p. B6.



an option's estimated market value on the date the option is granted—but does not require it.<sup>6</sup> Firms estimate such values through the use of both analytic option-pricing methods and the options' prevailing market prices. If the market price of a stock is greater than zero, the fair value of an employee stock option will also be greater than zero.

Companies that use the intrinsic value method almost always grant fixed stock options with a strike price at or above their stock's prevailing market price. (If the strike price was set below the prevailing market price—so that the option had a positive intrinsic value, or was “in the money”—the company would be required to count that difference as an expense.) As noted earlier, an option with a strike price equal to or greater than the current market price of the underlying stock has an intrinsic value of zero.

The intrinsic value method understates the market value of employee stock options for at least two reasons. First, it assigns no value to the probability that the market price of the stock will rise above the strike price. Second, it does not account for the time value of the money that the option holder saves by being allowed to defer the purchase of the stock.<sup>7</sup> Yet an option has a positive fair value even if the strike price exceeds the market price of the stock when the option is granted because the time value of money and the chance that the stock's market price will exceed the option's strike price before expiration are

always greater than zero. (Indeed, the longer the life of the option—the period during which it can be exercised—the greater the chance that the stock's price will exceed the strike price.)

The majority of companies that grant employee stock options have fixed stock option plans and until recently have chosen to use the intrinsic value method—that is, to merely disclose the fair value of the options that they grant rather than to recognize that amount as an expense. Until 2002, only two major firms (Boeing and Winn-Dixie Stores) had elected to use the fair value method in accounting for employee stock options. Since July 2002, however, nearly 500 U.S. firms have announced that they will voluntarily adopt that valuation method.<sup>8</sup>

### FASB's Proposal

In March 2003, FASB announced plans to reconsider the current standard for equity-based compensation. Its stated objective was to cooperate with the International Accounting Standards Board (IASB) to establish a single international accounting standard for such compensation.<sup>9</sup> On March 31, 2004, FASB released its proposal to require firms to recognize the fair value of employee stock options—eliminating the alternative of recognizing the intrinsic value and merely disclosing the fair value in a note.<sup>10</sup> The prospect of that revision has prompted considerable controversy, with the managers of many firms that grant such options reiterating their opposition to the requirement. For many observers, the challenge of this issue is to understand the arguments being offered on both sides of the debate.

### Why Firms Grant Stock Options

Firms grant employee stock options as compensation for any of a number of reasons: to minimize the firm's compensation costs, to conserve cash, and to avoid the limits on the tax deductibility of cash compensation. Employee

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6. FAS 123 allows firms to account for employee stock options as prescribed by Opinion 25. Under the Opinion 25 standard, the measurement date for determining the compensation expense of employee stock options is the first date on which the number of shares that the employee is entitled to receive and the exercise price are known. For fixed stock options, those parameters are generally known at the time that the options are granted. (Fixed stock options, so called because the number of shares to which an employee is entitled is known at the time of the grant, are the most common form of stock compensation plan.) In contrast, the measurement date for determining the compensation expense of performance stock options (options for which vesting depends on both the employee's continued service to an employer and the achievement of performance goals, such as exceeding a sales target) may be later than the date on which they are granted. That is because the terms of the award (the number of shares that may be purchased and the strike price) depend on events that occur after the options are awarded.
7. The time value of money is the idea that a dollar now is worth more than a dollar in the future, even after adjusting for inflation, because a dollar in hand today could earn interest, for example, until the time that the dollar in the future was received.

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8. See David Reilly, “Foreign Firms to Expense Options,” *Wall Street Journal*, February 19, 2004, p. A2.
9. In February 2004, the IASB issued a rule to require the expensing of employee stock options. See Reilly, “Foreign Firms to Expense Options.”
10. Financial Accounting Standards Board, *Proposed Statement of Financial Accounting Standards: Share-Based Payment* (No. 1102-100, an amendment of FASB Statements No. 123 and 95), March 31, 2004, available at [www.fasb.org/draft/ed\\_introprog\\_share-based\\_payment.shtml](http://www.fasb.org/draft/ed_introprog_share-based_payment.shtml).

stock option grants may also be desirable from the shareholders' standpoint because the options help align managers' incentives with shareholders' interests. Some critics argue, however, that the current accounting standard may contribute to an excessive use of such options—which may actually work against that alignment objective.

A firm creates value for its owners through its economic activity. In the case of a corporate firm, shareholders are the owners, contributing capital in return for owning shares of the business. Shareholders possess a so-called residual-ownership claim—that is, they bear the ultimate risk of loss and receive the benefits of profitability after all prior claims have been satisfied. Shareholders' risk of loss is limited to their investment; their gain is limited only by a firm's ability to create value.

Shareholders have what is known as a principal-agent relationship with the management of a firm. Managers are essentially agents of the owners, or principals. Left to their own devices, managers may act in their own best interest, which may not be the same as that of the shareholders—a phenomenon known as the agency problem. Shareholders can encourage managers to take actions that are consistent with their own interests by devising appropriate managerial incentives and then monitoring managers' performance.

Compensating managers with stock or with employee stock options may give those executives a stronger incentive to take actions that, for example, increase the price of the firm's stock. However, compensating managers with employee stock options does not completely solve the agency problem.

Another reason that firms grant employee stock options is to minimize their compensation expenses. Market forces determine the total compensation of workers. Employee stock options are often part of a package that includes wages, benefits, and working conditions. Firms try to structure such packages to appeal to workers and spur their efforts at the lowest cost to the firm.

For highly compensated employees, granting stock options can be less expensive for firms than other forms of compensation, such as cash salaries or outright grants of stock. For tax purposes, compensation (as well as other expenses) is normally deducted from a firm's gross income to arrive at its taxable income. But tax legislation enacted in 1993 disallows the deductibility of compensa-

tion paid to executives that exceeds \$1 million—unless that compensation is "performance based." Fixed stock options are deemed performance-based compensation for tax purposes. Employee stock options therefore may reduce taxable income—and taxes—when cash compensation does not.

The current accounting treatment of employee stock options provides an additional incentive for firms to grant options as part of employees' compensation because it allows firms to recognize the expense of some employee stock options at less than their market value—in most cases, at a value of zero. That treatment helps accommodate the seemingly conflicting incentives firms face in reporting their income for financial-accounting and for tax purposes. For financial-reporting purposes, firms prefer to maximize their reported income, but for tax-reporting purposes, they are interested in minimizing it. Current standards effectively allow firms to do both to some extent: they may record a compensation expense of zero for employee stock option grants in their financial reports, but they may also deduct the actual exercise value of those options as compensation expense on their tax returns.

### **Potential Economic Effects of Fair Value Recognition**

Recognizing the fair value of the employee stock options that firms grant would enable analysts and investors to more easily assess firms' compensation expenses and how those expenses affected firms' profits. That improved transparency would also aid corporate committees that approve managers' compensation packages. But some opponents of requiring firms to recognize the fair value of employee stock options contend that such a requirement might negatively affect the U.S. economy by lowering the price of firms' stock and hindering firms' access to capital.

Whether or not a requirement to recognize the fair value of employee stock options would reduce stock prices is an unsettled question. On the one hand, recognizing the options' fair value as an expense might drive down firms' stock prices if the current method of merely disclosing the fair value prevents investors from understanding the firms' actual profitability. Lower stock prices in turn might hurt the ability of those firms to raise capital, invest, and grow. (Lower stock prices could also lessen firms' propensity to grant employee stock options.) On the other hand, if equity markets are efficient at process-

ing the disclosed information about the fair value of options, which is not recognized in income statements, then the options' effect is already incorporated in stock prices, and a change in accounting treatment will have no further impact.

Experience to date suggests that the accounting change proposed by FASB will not necessarily have an adverse effect on stock prices of all firms that grant compensatory options. Studies of companies that have announced within the past three years that they will voluntarily switch to the fair value method have found no significant change in stock prices as a result of that announcement.<sup>11</sup> Of course, those firms that voluntarily changed to the fair value method might be those that anticipated a favorable outcome or no effect from doing so. Nevertheless, the results indicate that firms' stock prices are unlikely to experience a uniform adverse impact from the proposed change.

Experience has also shown that it is unnecessary for firms to overstate their net income in order to raise capital. Investors that perceive opportunities for growth in a firm's revenue and earnings have shown themselves willing to invest despite a less-than-outstanding current income statement.<sup>12</sup> Furthermore, many companies in the start-up phase of their operations turn to venture capitalists and private equity firms for fund-raising. Those organizations are made up of skilled investors who will be able to look past the stock options' expense to see the firm's potential.

If stock prices and access to capital are little affected, recognizing the fair value of employee stock options rather than merely disclosing it is unlikely to hurt the overall economy. In fact, if recognition of that expense better informs investors about firms' profitability than disclosure does, capital will be allocated more efficiently, and the

economy will be more productive. To the extent that grants of employee stock options are motivated by the discrepancy between the economic and accounting values of those options, recognizing their fair value may reduce the number of options that are granted, but it should not create an unwarranted bias against their use.

## Valuing and Recognizing Employee Stock Options

Because the value of an option changes with time and as a result of other factors, including fluctuations in the price of the underlying stock, a point must be chosen at which to measure that value. Under the fair value method of the current accounting standard, the value of employee stock options is measured when they are granted. However, the options' value might also be measured at the end of the vesting period or when they are exercised, and arguments for measuring value at those points have been made. An important additional question is whether the options' value can be reliably estimated, whatever point is eventually chosen.

An option's value at the end of the exercise period is almost always different from its value when it was granted. In general, and all other things being equal, the longer the exercise period of an option, the higher the option's value will be—because of the greater chance that the market price of the stock will rise above the strike price. If the market price of the stock fails to exceed the option's strike price, the option holder will not exercise the option.

## The Difficulty of Measuring the Value of Employee Stock Options

Employee stock options are difficult to value precisely. Mathematical models have been developed to value exchange-traded options (including call options), but in order to use them for employee stock options, the models must be adjusted to account for the differences between the two kinds of options. (See Box 2, which describes how employee stock options differ from call options.) For example, exchange-traded options are transferable without restriction, whereas employee stock options have a significant vesting period and even then usually cannot be sold (only exercised). Employee stock options also have a longer exercise period than most exchange-traded options have. As a result, the actual value of employee stock options is likely to be different from the value predicted by models developed for exchange-traded options.

11. See Ashish Garg and William Wilson, "Expensing of Options: What Do the Markets Say?" *CrossCurrents* (Fall 2003), pp. 2-9; and "Option Expensing Announcement Has No Impact on Share Price, Towers Perrin Event Study Affirms," available at [www.towersperrin.com/hrservices/global/default.htm](http://www.towersperrin.com/hrservices/global/default.htm).

12. Throughout the 1990s, for example, many firms with little or no revenue successfully sold shares. For a discussion, see Robert N. McCauley, Judith S. Ruud, and Frank Jacono, "Cheap Equity Capital for Young Firms," in *Dodging Bullets: Changing U.S. Corporate Capital Structure in the 1980s and 1990s* (Cambridge, Mass.: MIT Press, 1999), pp. 247-264.

**Box 2.****How Employee Stock Options Differ from Call Options**

Employee stock options are sometimes described as call options because their fundamental function is the same. Both types of securities give the holder the right to buy a specified number of shares of a firm's stock at a specified price (the strike price, or exercise price) until a given date (the expiration date). However, employee stock options differ from call options in several respects. An important distinction is that employee stock options, unlike call options, are corporate securities (that is, issued by corporations).

In general, the two parties to an option contract are the creator or issuer of the option, also known as the seller or writer, and the purchaser of the option, also known as the buyer or holder. With employee stock options, the corporation is the writer and the employee recipient of the employee stock option is the holder. At the inception of the option contract, the writer receives the price paid for the option, referred to as the premium. (In the case of employee stock options, the premium is the forgone cash wages.) Call options and employee stock options both confer on the holder the right to gain from increases in the stock price, with the risk of loss limited to the price

paid. A rise in the price of the underlying stock results in gains for the holder, equal to the excess of the market price over the exercise price. Gains to the holder are losses to the writer.

Unlike call options, employee stock options usually have a vesting period—a specified waiting period before they may be exercised—which typically ranges from two to four years. In addition, employee stock options are usually nontransferable, meaning that the employees may not sell them to others.

Another difference is that the exercise of employee stock options affects the corporation's holdings of cash and its number of shares outstanding. Because employee stock options are written by corporations rather than by individuals, the holder pays the strike price to the corporation when he or she exercises the options. As a result, the firm's cash increases, and the firm issues new shares. In contrast, the exercise of ordinary call options results in the transfer of existing shares from one shareholder to the option holder and affects neither the value of the firm's assets nor the number of shares outstanding.

Yet despite those difficulties, many market participants regard current valuation methods as reliable. Firms are already using current methods to calculate the fair value of all employee stock options as required for disclosure in the notes of their audited financial reports. Moreover, option-pricing models are used by traders and investors whose money is at risk to value options that are much more complex than employee stock options.

Another indication that the value of employee stock options may be estimated reliably is the fact that in some instances, firms that grant such options and the employees who receive them can enter into other financial transactions designed to protect against losses. Such transactions, known as hedging, are financial techniques that are structured so that the gain or loss on one holding is offset by the gain or loss on another. (For example, if an investor

wanted to completely hedge the payoff of writing (selling) a call option, he or she could simultaneously buy a call option with the same terms.)<sup>13</sup>

13. However, there are also ways to hedge a financial instrument without buying or selling the same instrument, and there are ways to partially hedge, so that the risk of loss or gain is lessened but not eliminated. For an explanation of how firms hedge their exposure, see Gene Amromin and Nellie Liang, "Hedging Employee Stock Options, Corporate Taxes, and Debt," *National Tax Journal*, vol. 56, no. 3 (September 2003), pp. 513-533. For a discussion of ways that recipients may hedge, see, for example, J. Carr Bettis, John M. Bizjak, and Michael L. Lemmon, "Managerial Ownership, Incentive Contracting, and the Use of Zero-Cost Collars and Equity Swaps by Corporate Insiders," *Journal of Financial and Quantitative Analysis*, vol. 36, no. 3 (September 2001), pp. 345-370.

### When Should the Value of Employee Stock Options Be Measured?

Because the estimated fair value of employee stock options changes continually from the granting date until the exercise date, *when* options are valued determines the amount that firms recognize on their income statements. The value of firm-written employee stock options may be measured at three different points: when they are granted, when the vesting period ends, or when they are exercised.

**Valuing Options When They Are Granted.** Most analysis supports valuing employee stock options when they are granted because their value at that point most closely corresponds to the cost to the firm of the compensation that they represent. According to that rationale, such options are given in lieu of cash compensation, and their value is approximated by their market value—that is, the firm incurs a cost when it grants employee stock options, a cost equal to the value for which the options could be sold. In theory, employees in competitive labor markets who receive options are subject to an equivalent reduction (in the amount of the options' value) in their cash compensation.<sup>14</sup>

Another factor that determines the compensation expense of the employee stock options that a firm grants is the number of options that are expected to vest. (If employees do not remain with the firm long enough to satisfy the options' vesting period, they forfeit the options granted to them.) Firms are permitted to estimate the value of the options that they expect will not be exercised and to factor in that amount when they calculate the compensation expense of the options that must be recognized. Under the current accounting standard—regardless of whether the firm is using the fair value or intrinsic value method—firms do not recognize any compensation expense for options that they expect will be forfeited by employees who fail to satisfy vesting requirements.

The fair value method of the current accounting standard requires firms to measure the value of employee stock options (that are expected to vest) when the options are granted. According to FASB, that value constitutes the entire amount of the compensation given to employees in the form of stock options. Any subsequent gain or loss in

the options' value does not affect the value of the firm granting them but is instead a direct transfer of wealth from current shareholders to option holders (see the later discussion).

**Valuing Options When They Vest.** Because employees cannot exercise their options until the end of the vesting period, some analysts contend that the options' value should not be measured until then. An advantage of waiting is that by that time, the number of vested options is known and does not have to be estimated (as it does if the options' value is measured when the options are granted). But the firm, not the employee, is the relevant reporting entity whose finances are being disclosed under the various accounting standards. As such, the appropriate issues are the cost of the options to the firm and when the firm incurs that cost. The firm obligates itself as a writer of the options on the date that it grants them—options are binding contracts between the firm and the employee and must be fulfilled. Thus, the options' value at vesting is irrelevant to the options' cost to the firm; the firm already incurred that cost when the options were granted.

**Valuing Options When They Are Exercised.** Because the value of employee stock options is realized only when the options are exercised, some observers argue that that is the appropriate time to measure their value. Indeed, for tax purposes, the gain that employees realize when they exercise most compensatory stock options is the value that the firm may deduct as compensation expense from its gross income in determining its taxable income; it is also the measure of the compensation received by the individuals who exercise the options. But for financial-accounting purposes, the relevant issues are the options' cost to the firm and when the firm incurs that cost—that is, the value of the options when they are granted.

When employees exercise their stock options, they buy shares of stock from the firm for less than the stock's market value. However, changes in the value of employee stock options between the time they are granted and the time they are exercised do not represent an additional cost to the firm (and so are not recorded on the firm's income statement). Rather, they simply transfer wealth between existing shareholders and stock option holders.

That transfer of wealth represents a gain to the employees who are exercising the stock options—and a loss to existing shareholders—but it has no effect on the value of the firm. When employees exercise their stock options, the

14. If employee stock options were given in excess of competitive market compensation, that would imply that the boards of directors of firms were not fulfilling their fiduciary duties to shareholders.

firm experiences no outflow of resources. To fulfill the employee stock option contract that it wrote, the firm is required only to issue additional equity claims (shares of stock), which it can do at any time at no cost to itself—although such an issuance does reduce the value of the claims of existing equityholders.<sup>15</sup> The value of the firm is affected only when the options are granted—that is, when the firm incurred the cost of granting the options to employees as part of their compensation instead of selling the shares to investors.

### When Should the Expense of Employee Stock Options Be Recognized?

Compensation is an operating expense, a cost of doing business. For the sake of accuracy, it should be treated like other operating expenses—matched with revenue and recognized in the same period. Thus, under the current accounting standard, the expense of employee stock options is measured when the options are granted and is recognized over the time (the vesting period) during which employees render services to the firm in exchange for the compensation that the options represent. The justification for recognizing the expense over the vesting period is that the employee earns the compensation (the stock options) only by continuing to work for the firm during that time.

Some observers, however, question whether employee stock options are indeed compensation. They claim that such options are “capital” income (income earned from investment ownership of a security) rather than labor compensation. But that argument fails to distinguish two separate events: the granting of an employee stock option, which conveys a specific amount of compensation, and subsequent gains or losses from changes in the option’s value. The initial grant is compensation; subsequent gains and losses may be considered investment income for the option’s holder.

In contrast to operating expenses, financing transactions, such as sales of stock, usually do not affect a firm’s income statement. Rather, they affect its balance sheet by changing the firm’s assets and the claims on those assets (in the form of liabilities and equity). Financing transactions do

not directly affect the amount of income earned by the firm and thus do not augment the investment of existing shareholders. When stock is issued, for example, cash assets and shareholders’ equity both increase (along with the number of shares outstanding), but no income results from that transaction.

The use of employee stock options effectively involves two types of transactions: the payment of compensation in the form of employee stock options (reflected on the income statement) and, when the options are exercised, a financing transaction (reflected on the balance sheet). That “hybrid” transaction requires recognizing the value of the options when they are granted as a cost on the income statement—but not any subsequent gains and losses in that value. As the following example shows, that treatment is consistent with the fair value method of accounting.

### Comparing Accounting Alternatives: An Example

CBO prepared an example to show how a firm can account for some of the different forms of compensation that it grants to its employees. In this example, the firm has assets of \$2,000, no debt, shareholders’ equity of \$2,000, annual revenue of \$1,000, and fixed market-determined compensation expenses of \$1,000 annually (the firm grants no dividends and pays no taxes). Before presenting the accounting for grants of employee stock options as compensation, the example shows the accounting for grants of stock and purchased call options in lieu of cash compensation.

#### Granting Cash, Stock, and Purchased Call Options as Compensation

The firm’s financial statements will differ depending on whether it pays all compensation in cash or pays \$200 worth of stock or purchased call options in lieu of cash compensation (see Table 1). Although net income is zero in all three cases (because total expenses are equal to revenues), granting stock for part of employees’ pay will leave the firm with \$200 more in cash assets.<sup>16</sup> Granting stock

15. Share price dilution results when the number of ownership claims on the firm increase, but the firm’s market value does not rise proportionately. See the example in the last section for further discussion.

16. Under current accounting rules, if the firm grants stock in lieu of cash compensation, the value of that stock is recognized on the firm’s income statement as compensation expense.

**Table 1.****Comparison of Accounting Treatments for Selected Forms of Compensation:  
Cash, Stock, and Purchased Call Options**

(Dollars)

|   | Firm Pays<br>Compensation<br>Entirely in Cash | Firm Grants Stock in<br>Lieu of \$200 of Cash<br>Compensation | Firm Grants<br>Purchased Call<br>Options in Lieu of<br>\$200 of Cash<br>Compensation |
|---|---|---|--|
| <b>Income Statement</b>                           |   |   |  |
| Revenues  | 1,000   | 1,000   | 1,000  |
| Expenses  |   |   |  |
| Cash compensation                                 | -1,000  | -800  | -800   |
| Stock compensation                                | n.a.  | -200  | n.a.   |
| Purchased call option compensation                | <u>n.a.</u>                                   | <u>n.a.</u>   | <u>-200</u>  |
| <b>Net Income</b>                                 | <b>0</b>                                      | <b>0</b>  | <b>0</b>   |
| <b>Balance Sheet<sup>a</sup></b>                  |   |   |  |
| <b>Assets</b>                                     |   |   |  |
| Assets at the beginning of the year               | 2,000   | 2,000   | 2,000  |
| Plus cash conserved by compensating<br>with stock | <u>n.a.</u>                                   | <u>200</u>  | <u>n.a.</u>  |
| Assets at the end of the year                     | 2,000   | 2,200   | 2,000  |
| <b>Equity</b>                                     |   |   |  |
| Owners' equity at the beginning of the year       | 2,000   | 2,000   | 2,000  |
| Additional owners' equity                         | <u>0</u>                                      | <u>200</u>  | <u>0</u>   |
| Owners' equity at the end of the year             | 2,000   | 2,200   | 2,000  |

Source: Congressional Budget Office.

Notes: n.a. = not applicable.

The year referred to in this table is the one in which the stock options are granted.

a. In this example, the firm has no liabilities. For a review of income statements and balance sheets, see Box 1.

causes owners' equity to be \$200 higher, because employees have in effect contributed \$200 to owners' equity by accepting stock instead of cash compensation. (It is as if employees were paid \$1,000 in cash, and then the employees paid \$200 of that cash to the firm in exchange for stock.) By granting compensation in the form of stock, the firm has more total owners' equity, but it also has more shares outstanding. Existing shareholders will suffer no loss in the value of their shares from the increase in shares if employees paid the fair market value for the new shares in forgone cash compensation.

If the firm pays a portion of employees' compensation with call options purchased from a third party, its financial statements will be similar to those under the cash-compensation scenario. (In this case, it is as if employees were paid \$1,000 in cash and then the employees paid \$200 of that cash to the third party in exchange for the call options.) The firm recognizes as an expense the fair value of the options it purchased. Because a third party wrote the options, the firm's existing shareholders will not face the prospect of any share price dilution (reduction in wealth) if the options are exercised. In contrast, with employee stock options that the firm writes itself, the fair value may not be recognized as an expense on the

**Table 2.****Comparison of Accounting Treatments for Employee Stock Options**

(Dollars)

|   | Firm Grants \$200 Worth of At-the-Money Options in Lieu of Cash Compensation |                        |
|---|--|------------------------|
|   | Fair Value Method  | Intrinsic Value Method |
| <b>Income Statement</b>                                   |  |                        |
| Revenues  | 1,000  | 1,000                  |
| Expenses  |  |                        |
| Cash compensation   | -800   | -800                   |
| Option compensation                                       | <u>-200</u>  | <u>0</u>               |
| <b>Net Income</b>   | <b>0</b>   | <b>200</b>             |
| <b>Balance Sheet<sup>a</sup></b>                          |  |                        |
| Assets  |  |                        |
| Assets at the beginning of the year                       | 2,000  | 2,000                  |
| Plus cash conserved by compensating with options          | <u>200</u>   | <u>200</u>             |
| Assets at the end of the year                             | 2,200  | 2,200                  |
| Equity  |  |                        |
| Owners' equity at the beginning of the year               | 2,000  | 2,000                  |
| Addition to owners' equity from net income                | 0  | 200                    |
| Option holders' equity                                    | <u>200</u>   | <u>0</u>               |
| Owners' and option holders' equity at the end of the year | 2,200  | 2,200                  |

Source: Congressional Budget Office.

Notes: The year referred to in this table is the one in which the stock options are granted.

In this example, the fair value of the options is recognized (subtracted from income) when the options are granted. That accounting method is identical to the treatment of the grant of \$200 in stock compensation noted in Table 1.

Under the intrinsic value method of accounting, the exercise value of the options is also recognized when they are granted. (In this case, that value is zero.) However, the current accounting standard is slightly more complicated and hence difficult to include in this table: valuation occurs at grant and recognition occurs over the vesting period. (In this example, the options vest immediately.)

An option is "at the money" if the share price of the underlying stock is equal to the strike price of the option.

a. In this example, the firm has no liabilities. For a review of income statements and balance sheets, see Box 1.

firm's income statement, and existing shareholders will experience share price dilution if the options are exercised.

### Granting Employee Stock Options in Lieu of Equivalent Cash Compensation

If the firm grants employee stock options as compensation, the accounting treatment is more complex. In this scenario, the firm grants at-the-money options with a fair value of \$200 in lieu of that amount of cash compensation (by assumption, the options vest immediately). Issuing employee stock options instead of cash permits the

firm to retain cash equal to the value of the options and gives employees a contingent claim on the firm. By substituting employee stock options for \$200 in cash compensation, the firm retains \$200 more in cash. Whether the firm reports net income of zero or \$200, however, depends on which method it uses to value the options (see Table 2).

With the fair value method, the firm recognizes as an expense the fair value of the options at grant (\$200), so its net income is unchanged relative to paying all compensation in cash. (That accounting treatment is identical to



that of the scenario in which the firm grants \$200 in stock compensation.) The intrinsic value method recognizes the immediate-exercise value of the options (zero), rather than the fair value (\$200), and thus reports net income of \$200. Under both methods of valuation, cash assets are higher by \$200.

If the employee stock options that the firm has granted subsequently change in value, that change will have no effect on the firm's income statement or balance sheet under either accounting method. (Similarly, a change in the market value of a stock will have no effect on a firm's financial accounting after the stock is granted as compensation.) If the options granted in this example increase in value by, say, \$100, the firm's reported net income will still be zero.

### Letting Options Expire or Exercising Them

At the end of the life of an option (its expiration), its holder will either exercise it at a gain or allow it to expire unexercised. At that point, the firm's income is unaffected under both fair value and intrinsic value accounting, whether the option is exercised or expires unexercised.

**Options Expire Unexercised.** If the employee stock options that were worth \$200 when the firm granted them subsequently fall in value and are not in-the-money, then the holders will choose to let the options expire unexercised. The final balance sheet and income statement numbers in that scenario are identical under both the fair value and intrinsic value methods (see the first two columns of Table 3). Although the options have decreased in value, that decline will have no effect on the firm's income under either accounting method.

**Options Are Exercised.** If those options that were worth \$200 when the firm granted them subsequently increase in value and are in the money, then the holders will choose to exercise them by paying the firm the strike price in exchange for the stock. Suppose that the employee stock options granted in this example were for 100 shares of stock, with a strike price of \$10, and that the market price of the stock has risen to \$13. In that case, option holders pay the firm \$1,000 in cash (100 shares of stock times the strike price of \$10 per share), which increases owners' equity by the same amount (see the last two columns of Table 3).

While the income statement and the ending value of the balance sheet are the same under both accounting meth-

ods when employee stock options are exercised, the balance sheet entries differ. Under the fair value method, the option holders' equity is transferred to owners' equity upon the exercise of the employee stock options, because exercising the options results in the option holders' receiving ownership shares. Under the intrinsic value method, there is no option holders' equity to transfer.

What the financial statements do not show, however, is the economic effect of the exercise of stock options on existing shareholders. When firm-written stock options are exercised, wealth is transferred from existing shareholders to those exercising the options. Such share price dilution is not a cost to the firm per se, but it is certainly relevant to existing shareholders, as shown below.<sup>17</sup>

If immediately before the exercise of the employee stock options, the firm had 500 shares of its stock outstanding, trading at \$13 per share, then the market value of the firm was \$6,500 (\$13 times 500). Upon the exercise of the employee stock options for 100 shares, the option holders pay a total of \$1,000 to the firm. That transaction simultaneously increases the market value of the firm to \$7,500 and boosts the number of shares outstanding to 600. Thus, immediately after the exercise of the employee stock options, the market price of a share of the firm's stock falls to \$12.50 (\$7,500 divided by 600). Therefore, the exercise of the employee stock options caused existing shareholders to transfer 50 cents per share of the value of their shares to those exercising the options.

### The Bottom Line: Reporting Differences Between the Two Accounting Methods

The fair value method and intrinsic value method of accounting for employee stock options result in different reported net income for the same firm. The firm in this example has no annual net income from operations. But by using the intrinsic value method of accounting, the firm reports \$200 in net income in the year in which the employee stock options were granted, an overstatement equal to the value of the options on the granting date. No subsequent transaction reverses or offsets that overstatement.

17. If the firm had purchased call options from another entity to grant to employees rather than writing them itself, the exercise of those purchased call options would not result in share price dilution for existing shareholders.

**Table 3.****Comparison of Accounting Treatments for Employee Stock Options at Expiration**

(Dollars)

|   | Options Are Unexercised |                        | 100 Options Are Exercised at a Strike Price of \$10 |                        |
|---|-------------------------|------------------------|---|------------------------|
|   | Fair Value Method       | Intrinsic Value Method | Fair Value Method                                   | Intrinsic Value Method |
| <b>Income Statement</b>                             |                         |                        |   |                        |
| Revenues  | 1,000                   | 1,000                  | 1,000   | 1,000                  |
| Expenses—Cash Compensation                          | <u>-1,000</u>           | <u>-1,000</u>          | <u>-1,000</u>                                       | <u>-1,000</u>          |
| <b>Net Income</b>                                   | <b>0</b>                | <b>0</b>               | <b>0</b>  | <b>0</b>               |
| <b>Balance Sheet<sup>a</sup></b>                    |                         |                        |   |                        |
| Assets  |                         |                        |   |                        |
| Assets at the beginning of the year                 | 2,200                   | 2,200                  | 2,200   | 2,200                  |
| Cash received (paid) from option exercise           | <u>n.a.</u>             | <u>n.a.</u>            | <u>1,000</u>  | <u>1,000</u>           |
| Assets at the end of the year                       | 2,200                   | 2,200                  | 3,200   | 3,200                  |
| Equity  |                         |                        |   |                        |
| Option holders' equity at the beginning of the year | 200                     | 0                      | 200   | 0                      |
| Transfer to owners' equity                          | <u>-200</u>             | <u>0</u>               | <u>-200</u>   | <u>0</u>               |
| Option holders' equity at the end of the year       | 0                       | 0                      | 0   | 0                      |
| Owners' equity at the beginning of the year         | 2,000                   | 2,200                  | 2,000   | 2,200                  |
| Transfer from option holders' equity                | 200                     | 0                      | 200   | 0                      |
| Change in owners' equity from option exercise       | <u>n.a.</u>             | <u>n.a.</u>            | <u>1,000</u>  | <u>1,000</u>           |
| Owners' equity at the end of the year               | 2,200                   | 2,200                  | 3,200   | 3,200                  |

Source: Congressional Budget Office.

Notes: n.a. = not applicable.

The year referred to in this table is the year in which the options expire.

a. In this example, the firm has no liabilities. For a review of income statements and balance sheets, see Box 1.