

American Society of Appraisers Business Valuation Committee Special Topics Paper #5 Consideration of Stock-Based Compensation in the Valuation Process

Under FASB Accounting Standards Codification 718 (formerly FAS 123[R]), equity compensation granted to employees is valued at fair value at the time of the grant and then expensed. Valuation analysts routinely quantify the dilutive effect that stock-based compensation (SBC) has on entity equity value. This dilution can be attributed to SBC that was granted in periods prior to the valuation date and SBC that is expected to be granted in future periods. It is important that the valuation analyst understands the characteristics of the different types of securities that give rise to shareholder dilution and how to properly account for the dilutive effect of these securities. This technical paper provides an overview of the accounting treatment of SBC and a discussion of the methods to address SBC in the valuation process when estimating entity equity value.

Introduction

Valuation analysts are generally aware of the potential dilution to equity value that results from stock-based compensation (SBC). In general, this potential dilution can be attributed to (1) SBC that was granted in periods prior to the valuation date and (2) SBC that is expected to be granted in the future (i.e., after the valuation date).

As SBC continues to be an important method of employee compensation, particularly in technology companies and other high-growth companies, it is important that valuation analysts consider the dilutive effects of SBC in their analyses of entity equity.

This technical paper includes an overview of the accounting treatment of SBC and a discussion of the methods to address SBC in the valuation process when estimating entity equity value.

Overview of Accounting for SBC

SBC has been used over the years to both attract and retain employees. Granting SBC, namely, stock options, was particularly prevalent in the 1990s when the United States was in the midst of a technology boom. Also fueling the granting of large amounts of employee stock options was the fact that companies were generally not required to record an expense for the options. As a result, the issuing company's earnings were largely unaffected by the "cost" of the substantial option grants.

Prior to 2006, it was generally uncommon for a company to record SBC as an expense on its income statement. However, in 2005 the accounting guidance

was changed to require companies to value and then expense SBC at the time of the grant. More specifically, under FASB Accounting Standards Codification (ASC) 718 (formerly FAS 123[R]), equity compensation granted to employees is valued at fair value at the time of the grant and then expensed. The expense is amortized over a required service period, which is generally the stock option's vesting period. ASC 718 applies to all SBC issued to employees in the form of restricted stock, stock options, or other equity securities, such as stock appreciation rights.¹

As an example of the application of ASC 718, assume that a company compensates its employees with both cash and stock options. Assume further that an employee's cash compensation is \$100,000 and the option grant may vary by year. The accounting treatment of the cash compensation component is simple to understand because the compensation is treated as an expense in the period it was paid to the employee. However, the accounting treatment of the granted stock options is less intuitive. ASC 718 requires that the issuing company record an expense over a discrete period for the fair value of the granted stock options. As a result, the fair value of the granted options is needed to comply with ASC 718.

In estimating the fair value of the granted stock options, it is important to note that the options' intrinsic value (i.e., price per share of the stock that underlies the option minus the exercise price per share of the option) is not

¹ASC 718 does not apply to equity-based securities held by an employee stock ownership plan.

necessarily equivalent to the options' fair value. In other words, an option may be granted "at the money" where the exercise price is equivalent to the underlying stock price, but the option may have value in excess of its intrinsic value if the option has any meaningful remaining term prior to expiration. This value is often referred to as the time premium of the option.

Rather than relying on intrinsic value as a measurement of the options' fair value, valuation analysts routinely rely on various option pricing models, such as the Black-Scholes option pricing model, to estimate the fair value of the granted options. In this example, assume that the Black-Scholes option pricing model was used to estimate a fair value of \$75,000 for the granted stock options.

Once the option value has been estimated, ASC 718 requires that the value be expensed. However, in this example, the entire \$75,000 value is not expensed in the year of the grant. Instead, the \$75,000 value is amortized over the options' life, which is generally the options' vesting period. If we assume the options vest equally over a five-year period, 20 percent, or \$15,000, of the option grant would be expensed each year, subject to adjustments for certain events such as option cancellations.

To this point, the discussion of accounting treatment has focused primarily on current and future grants of SBC that could cause dilution. However, dilution also may occur through restricted stock, stock options, and other derivative securities that were granted in prior periods and outstanding as of the valuation date. Earnings dilution attributed to SBC granted in prior periods (and outstanding as of the valuation date) has been adequately covered in the accounting guidance for many years. Also, many valuation analysts are comfortable analyzing the equity capital structure of a company to estimate a fully diluted share count that could be used in the valuation process. Nonetheless, we will address in this technical paper the different ways of handling fully diluted shares as part of the valuation process.

Dealing with SBC in the Valuation Process

As previously discussed, shareholder value dilution may be caused by stock options, restricted stock, and other equity-based securities that were granted in prior periods and outstanding as of the valuation date. Likewise, shareholder value dilution may be caused by future grants of SBC. This section of the paper discusses the various ways for the valuation analyst to account for the different types of dilution in the analysis.

Securities outstanding as of the valuation date

Shareholder equity dilution that results from restricted stock and stock options that are outstanding as of the

valuation date is generally easy to identify and quantify. As an example, assume a valuation analyst uses a generally accepted valuation method, such as the discount cash flow (DCF) method, to arrive at a value of \$10 million for the equity of a company. Further assume that the company has only one class of stock outstanding, which is 1 million shares of unrestricted common stock. If the company did not have any other securities outstanding, such as stock options, restricted stock, or warrants, the per-share value is simply calculated as \$10 million divided by 1 million shares, or \$10 per share. However, if the company had other restricted or derivative securities outstanding, it would be proper for the valuation analyst to account for the dilution in per-share value that is caused by these securities.

The valuation analyst may use several methods for quantifying the dilutive effective of outstanding securities from SBC that was granted in prior periods. We will discuss the application of three of the more common methods:

- Fully diluted method
- Treasury stock method
- Option valuation method

The fully diluted method is easy to understand and apply. The simplest application of this method is to consider all of the outstanding restricted shares and stock options in the share count when calculating a per-share value. This method assumes that all outstanding options are exercised as of the valuation date and the issued common shares are added to the share count. For example, assume that the previously described company with an equity value of \$10 million and 1 million outstanding and unrestricted common shares also has 500,000 fully vested, restricted shares and 300,000 employee stock options outstanding. In this example, the \$10 million equity value is divided by 1.8 million fully diluted shares (1 million unrestricted shares plus 500,000 restricted shares plus 300,000 shares that would be issued upon the exercise of the options) to arrive at a value of \$5.56 per share. Clearly the fully diluted method results in a per-share value that is well below the per-share value that results if SBC was ignored. However, many valuation analysts would argue that the value of \$5.56 per share is understated for several reasons.

First, the fully diluted method considers all outstanding restricted shares and options, including the securities that have yet to vest. This may be a problematic assumption, especially with entities that have a history of SBC being forfeited prior to fully vesting. Including shares that are not expected to vest in the share count results in an overestimation of the share count and an underestimation of the per-share value.

Second, the fully diluted method may consider all outstanding stock options, regardless of whether the options are in-the-money or out-of-the-money. While this may be a reasonable assumption to make for options that are deep in-the-money, it is a problematic position to take with options that are substantially out-of-the-money. It may not be reasonable to believe these out-of-the-money options would be exercised as of the valuation date, and, in fact, the options may never be exercised prior to their expiration. Including out-of-the-money options in the share count also results in an underestimation of the per-share value.

Third, the fully diluted method generally does not consider the cash that would flow into the company upon the exercise of the stock options. This cash would be in the form of exercise proceeds paid by the employees to the company upon exercise of the options. Excluding the option exercise proceeds from the equity value of the company while using a fully diluted share count will result in an underestimation of the per-share value.

Fourth, the fully diluted method generally does not consider the value of the outstanding stock options and the true claim that the option holders have on the equity of the company. As previously discussed, even stock options with an intrinsic value of \$0 (i.e., at-the-money options) usually have fair value that is in excess of \$0 if the options still have some remaining term. The value of these options is generally ignored in the fully diluted method, which results in an overestimation of the per-share value.

The fully diluted method can be adjusted to correct for some of its shortcomings, but the adjustments do not fully resolve all issues. For example, the method can be applied in a way where only vested securities and in-the-money options are included in the share count. Although this adjustment may resolve some of the issues that cause an underestimation of the per-share value, it creates other issues that may need to be considered. For example, simply ignoring all unvested restricted shares and options and all out-of-the-money options seems to imply that the valuation analyst expects that those securities will never vest and/or never be exercised. In many cases, this is an unreasonable assumption for the valuation analyst to make.

Given the problems with the fully diluted method, some valuation analysts prefer to use the treasury stock method when estimating the diluted per-share value of a company's equity. The treasury stock method is an improvement to the fully diluted method in that it considers the exercise proceeds that would be paid to the company by the option holders upon exercise of their options. For example, assume that the 300,000 outstanding options in our hypothetical company have an

aggregate exercise price of \$1.5 million, or \$5.00 per share. Using the treasury stock method, the aggregate proceeds that the company would receive from the exercise of the options of \$1.5 million is added to the company's equity value of \$10 million. The resulting adjusted value of \$11.5 million is then divided by the 1.8 million fully diluted shares to arrive at a per-share value of \$6.39.

A reconciliation of the per-share value of \$6.39 can be done by calculating the number of shares that would be issued by the company in a cashless option exercise, adding that number of shares to the share count, and then dividing the adjusted share count into the unadjusted equity value of the company. For example, based on our prior calculations, we know that \$6.39 per share represents a fully diluted value after consideration of all outstanding common shares, restricted stock, and stock options. As a result, if the option holders exercised all of the options, they would receive common shares with a value of \$1,917,000, which is calculated as 300,000 options times value per share of \$6.39. However, the option holders would need to pay the company aggregate proceeds of \$1.5 million to exercise the options. Therefore, the difference between value received of \$1,917,000 and exercise price to be paid of \$1.5 million, or \$417,000, represents the net value to the option holders. If the option holders chose to exercise on a cashless basis, the company would not receive any cash, but it would distribute stock with a value of \$417,000 to the option holders. Based on the fully diluted per-share value of \$6.39, the option holders would receive 65,258 newly issued shares from the company (i.e., \$417,000 divided by \$6.39 per share). This new share count can be used to verify the concluded value of \$6.39 per share. More specifically, the equity value of the company is \$10 million, assuming a cashless exercise by the option holders. The new share count is 1,565,258 shares based on a cashless exercise of the options (1 million unrestricted shares plus 500,000 restricted shares plus 65,258 shares that would be issued upon the exercise of the options). Dividing the \$10 million equity value by 1,565,258 fully diluted shares results in a fully diluted per-share value of \$6.39.

As expected, the per-share value of \$6.39 is higher than the \$5.56 per-share value that was estimated using the fully diluted method. This increase in the per-share value is due primarily to the inclusion of the stock option exercise proceeds in the value of the company equity. Although the treasury stock method may provide a more accurate per-share value than the fully diluted method in some instances, it is not without problems.

The first problem is that the treasury stock method does not reflect any time premium that is associated with the

options. For example, the options in the example above are essentially valued at their intrinsic value when applying the treasury stock method. In reality, the options, which are in-the-money, would probably have a fair value in excess of their intrinsic value if there is any meaningful remaining term until expiration. In other words, the options may have a fair value that exceeds their intrinsic value. And the use of intrinsic value rather than fair value in the treasury stock method calculation will understate the value of the claim that the option holders have on the equity of the company.

The second problem with the treasury stock method is that it does not address the vesting of the options. In many situations, the valuation analyst makes a simplifying assumption that either all options (i.e., vested and unvested) or only the vested options will be included in the treasury stock method calculation. Including all options in the calculation, regardless of whether the options have vested or not, may cause an undervaluation of the per-share value because it is possible that some of the unvested options may never vest. On the other hand, including just the vested options in the treasury stock method calculation is also problematic because it assumes that none of the unvested options will ever vest. One potential solution to the problem regarding vesting is for the valuation analyst to include all of the vested options but only a portion of the unvested options in the per-share calculation. With this solution, the valuation analyst may review past vesting activity to make a reasonable estimate of the portion of unvested options that may vest in the future.

An alternative to the fully diluted method and the treasury stock method is the option valuation method. Many valuation analysts believe that the option valuation method will result in the most accurate diluted value per share. Within this method, the company's options are discretely valued and then subtracted from the equity value of the company. The resulting equity value is then divided by the number of outstanding common shares to arrive at a per-share value. Given that the options are generally valued at fair value (or fair market value) using a generally accepted option pricing model, the resulting option value includes any time premium that is associated with the options.

For example, in the hypothetical company discussed above, assume that the valuation analyst estimated that the 300,000 options have a fair value of \$2 per share, or \$600,000 in the aggregate. Subtracting the option value of \$600,000 from the value of the company's equity of \$10 million results in equity value attributed to the common stockholders of \$9.4 million. Dividing the residual value of \$9.4 million by 1.5 million shares (i.e., 1 million outstanding and unrestricted common shares plus 500,000 restricted shares) results in a per-share value of \$6.27.

The option valuation method is often considered to be superior to the fully diluted method and the treasury stock method in estimating a diluted per-share value, but it is not without its limitations. These limitations generally relate to issues concerning option vesting, option valuation, and stock price estimates.

Like the other methods, the option valuation method does not specifically address vesting of the options. As a result, the valuation analyst generally needs to adjust the analysis for this factor. In the case of the option valuation method, inclusion of unvested options in the analysis, specifically options that have a low probability of vesting, will overstate the value of the options and understate the residual equity value that is allocated to shareholders. In contrast, exclusion of all unvested options would lead to an undervaluation of the options and an overvaluation of the equity allocated to the stockholders.

The fact that the stock options need to be valued introduces a level of complexity in the option valuation method that is not present in the fully diluted method and the treasury stock method. Several option pricing/valuation models are available to valuation analysts, but the analyst is required to estimate appropriate variables to be used within the option pricing/valuation models to arrive at a supportable value conclusion. For example, in the Black-Scholes option pricing model, some of the variables are readily observable. However, other variables, such as stock price volatility, may require additional analyses and analyst judgment, especially if the subject company does not have publicly traded stock. In addition, the valuation analyst needs to recognize that the options are not publicly traded and, as a result, lack liquidity. Consequently, the valuation analyst needs to decide how to address the illiquidity and its impact on the value of the options.

In the context of companies that are not publicly traded, the valuation of the options becomes an iterative process where the fair value of the options is influenced by the fair value of the stock, and the fair value of the stock is influenced by the fair value of the options. The iteration involves estimating a fully diluted per-share value that, when used in the valuation of the options, results in the same per-share value for the common equity.

To this point, the discussion has been focused on previously issued SBC and its dilutive effect on equity value per share. The next section of this paper will discuss the dilutive effect that future grants of SBC have on equity value.

Securities to be issued in the future

For most companies that have granted SBC in the past, there is an expectation that SBC will continue to be a component of employee compensation in the future. This is why it is often important for valuation analysts to

analyze how future SBC grants will affect the value of the company's equity as of a current date.

The fully diluted method, treasury stock method, and option valuation method, in one way or another, account for the dilutive effect of previously granted SBC. However, these methods do not address the potential dilutive effect of future SBC grants that will increase the future number of outstanding shares.

Many valuation analysts, either intentionally or unintentionally, disregard the dilutive effect of future option and restricted stock grants. This is fairly easy to do if the analyst ignores any cost or expense that is associated with options and stock to be granted in the future. A common procedure employed by many valuation analysts is to either disregard SBC expense in income statement projections used in the DCF or add the expense back to cash flow because the analyst determines that the expense does not represent a use of cash. In either case, the valuation analyst is creating the illusion that future option and stock grants are not dilutive to the current shareholder base. Instead, the analyst should think of SBC, in some respects, as a cash expense. For example, most analysts recognize employee salaries as cash compensation and show an expense for such compensation in their projected income statement. When considering stock option grants, it may be helpful for the valuation analyst to think about the cost the company would incur if it needed to acquire the options in the public market prior to granting the options to employees. If this were to happen, the company would incur a cash outflow equal to the cost of the options. When thought of in this context, most valuation analysts realize the true value impact of granting future options. The same logic holds true with regard to restricted stock. If the company did not have common shares available to issue to employees as restricted stock, in theory, it would need to repurchase currently outstanding shares and then grant them to employees with the appropriate restrictions. In this case, the true cost to the company would be the cost it incurred to acquire the shares that it granted to its employees.

Forecasting the expense associated with future option grants can be a difficult exercise if the valuation analyst intends to predict how many options will be granted in each future period and the specific terms of each option grant. One of the most common ways that analysts handle this forecasting problem is to assume that the value of future option grants (and restricted stock grants) will be a certain percentage of revenue each period in the future. This forecasting procedure is particularly useful in companies where SBC expense has historically been a relatively stable percentage of revenue (or a declining percentage of revenue, in the case of a maturing company). By forecasting SBC expense as a percentage

of revenue, the valuation analyst eliminates the need to forecast specific variables such as how many options/shares will be granted in each subsequent period and the specific terms and restrictions of each grant. However, when dealing with a company that has little or no history in granting SBC, this procedure may be less useful.

An alternative procedure that is used less often by valuation analysts to forecast future dilution is to assume that the company will increase its number of outstanding shares by a fixed amount or a fixed percentage each year. This procedure is meant to capture the same cost as described in the percentage of revenue procedure, but many valuation analysts find it less useful than estimating SBC as a percentage of revenue.

In its simplest form, SBC is similar to other forms of employee compensation in that there is a future expense incurred by the company that is dilutive to the current shareholders. Although many valuation analysts realize that shareholder value is impacted by SBC that has been granted in the past, it is equally important for the analysts to understand how future SBC grants impact shareholder value.

When preparing a DCF method, valuation analysts need to be aware whether financial forecasts prepared by company management include SBC expense. If the forecasts include such an expense, some analysts choose to leave the expense in the cash flow stream unadjusted, assuming it appears to be a reasonable amount. Other valuation analysts choose to add back the expense to pretax income and then reduce projected cash flow by the amount the company would incur to fulfill the option grant if the recipient chose to exercise the options. This is a procedure used by analysts when companies routinely buy back their own shares in the public market and use those shares to fulfill option exercises. In either case, the valuation analyst may include some provision in the analysis for the dilutive effect of future grants of SBC.

Summary and Conclusion

In the ordinary course of their work, valuation analysts routinely quantify the dilutive effect that SBC has on entity equity value. This dilution can be attributed to SBC that was granted in periods prior to the valuation date and SBC that is expected to be granted in future periods.

It is important that the valuation analyst understand the characteristics of the different types of securities that give rise to shareholder dilution and how to properly account for the dilutive effect of these securities.

This technical paper is for education purposes and should not be considered to be authoritative. It has been provided as a discussion of a concept and is not being offered as professional advice. Each set of circumstances may require a different analysis to be performed.