

FAS 123R: Ready, Set, Go!

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More than three years have passed since the Financial Accounting Standards Board (FASB) published Statement 123R (the “Statement”) in December 2004, which requires companies to expense share-based payments, including employee stock options. Yet many finance departments are still trying to figure out how best to comply. Given its length and complexity, the Statement poses a considerable challenge to fast-moving startup companies as well as established private companies that need to add a new expense to their income statements.

The ultimate goal, of course, is to pass the audit. But you also want to make it a relatively painless experience. In order to expense share-based payments properly, management needs a detailed understanding of the FAS 123R requirements and how they interplay with the goals of the company.

Follow the steps below to help you prepare your company for a successful compliance audit.

HOW TO ESTABLISH FAIR VALUE

One of the primary outcomes of the Statement is the establishment of “fair value” as the measurement method to be used in accounting for share-based payments to both employees and non-employees. That fair value calculation can be achieved through various methods espoused by economists and financial experts. To its credit, the Statement does not require the use of one valuation method over another¹. Rather, it permits each company to determine which method best suits its purpose. According to the Securities and Exchange Commission, “This will enable companies to incorporate information about their specific circumstances in applying standard principles of financial economics to estimate option values.”²

Two types of valuation methods are most commonly applied:

- Black-Scholes-Merton (first published in 1973) estimates fair value using a closed-form model, in which valuation assumptions

(e.g., expected term, interest rate, volatility and dividends) are inserted into a formula in order to determine the fair value for each option grant.

- Lattice binomial, lattice trinomial, and Monte Carlo simulation all use standard numerical methods for the fair value calculation. In such models, the same valuation assumptions (except for expected term, which is an output) plus additional inputs are used to calculate fair value.

Whichever fair value calculation method is chosen, once determined, the fair value is applied to the option shares to compute the total expense recognizable for the option. That expense is then amortized over a period of time, usually connected to the vesting life of the grant and related to the allocation or attribution method selected by the company.

GET READY: RECORD AND TRACK SHARE-BASED PAYMENTS

Once you've chosen a model for computing fair value, the first step to the FAS 123R finish line is to identify

and record the securities that will need to be expensed. For most private companies, these include incentive stock options (ISO) and non-qualified or non-statutory stock options (NSO), as well as restricted stock and restricted stock units. Warrants, when issued as share-based payments for goods or services, are also expensed under FAS 123R; however, warrants issued in connection with bridge financings, convertible promissory notes, lease facilities or revolving lines of credit are not considered share-based payments for goods or services and are not, therefore, expensed under 123R.

The grant details of each security will play a part in the calculation of its fair value, which in turn will determine the expense compensation that the company must record. The grant details necessary for the fair value calculation include:

- Grant Date
- Number of Shares Granted
- Strike/Exercise Price
- Vesting Schedule

WORDS TO THE WISE:

WHICH VALUATION METHOD IS BEST?

As the FASB discovered, there is no one-size-fits-all valuation method, and for that reason, the Statement makes no authoritative pronouncement on which one should be used. Your company's circumstances should determine which method you use.

The Black-Scholes model is the best-understood of the models available and the simplest to use. At SVB we are familiar with more than 1,000 private companies, none of which use any method other than Black-Scholes for

fair value calculation. One of the key reasons is the time and expense involved in getting a customized lattice model approved by auditors.

While lattice binomial, lattice trinomial, and Monte Carlo simulations have gained limited traction among public companies, these models require inputs—such as exercise history or options that are tied to market events—that are not available for private or newly-public companies.

Keep these thoughts in mind before making the leap to a lattice model.

While not part of the grant data, the fair market value of the company's common stock (or preferred stock if the options are for preferred) on the date of grant is also an important component in the fair value calculation.

Here is a quick review of how each plays a part in the fair value calculation:

GRANT DATE

A security cannot be expensed prior to its existence, so a grant dated 10/01/08 will have no expense prior to that date, even if vesting begins before that date. For most employee grants, the fair value of the grant is determined as of the Grant Date.

NUMBER OF SHARES GRANTED

Securities expensed using the Grant Date method will calculate the total grant date fair value based on the number of shares granted multiplied by the fair value. The actual expense recognized will be based on the number of shares that vest.

Securities expensed using the Mark-to-Market method (typically grants to non-employees) will also use the number of shares granted in the initial calculation of total fair value, and for subsequent expense periods the fair value will be re-measured based on the requirements of Emerging Issues Task Force (EITF) 96-18³. As with the Grant Date method, the actual expense recognized under the Mark-to-Market method will be based on the number of shares that vest.

STRIKE/EXERCISE PRICE

The exercise price is the amount the option holder must pay to exercise the grant. The exercise price is set by the company and is typically equal to the fair market value of the company's stock underlying the grant to avoid penalties for the optionees under Internal Revenue

Code (IRC) section 409A. Incentive stock options are governed by IRC section 422⁴, which requires the exercise price to be no less than the stock's fair market value on the Grant Date.

VESTING SCHEDULE

Expense is recognized for a security over its "requisite service period"⁵, which usually dovetails with its vesting schedule. Depending on the allocation or attribution method chosen, expense can be recognized in connection with the vesting life of a grant (the straight line allocation method), or in a fully front-loaded, aggressively accelerated fashion (the FIN28 allocation method).

FAIR MARKET VALUE

Currently, most companies look to a 409A/FAS123R valuation, usually undertaken by an independent third-party valuation company, to determine this value. While an independent third-party 409A valuation is not required by the tax authorities (a company may be able to avail itself of the 409A "illiquid startup" safe harbor⁶ and have the appraisal performed internally), your auditors typically will not accept a "409A only" valuation or one done internally as neither would comply with the requirements of the AICPA Practice Aid which was written specifically for FAS123R. While IRC section 422 sets forth specific requirements as to the exercise price of ISOs (as noted above), it is important to note that all options, not just ISOs, are subject to the requirements of 409A and there are potentially severe penalties if the exercise price is set too low.

Securities on which only standard transactions have occurred—such as issuance, exercise and cancellation—are the easiest to expense. You won't have to revisit the valuation assumptions for these securities, as long as they are expensed using the Grant Date method. Such securities will take one set of valuation assumptions and will be

measured one time, at the date of grant. The valuation assumptions will not have to be adjusted at any point in the expensing process. The Grant Date expensing method is typically applied to securities issued to employees and board members (for their board services, not consulting services).

Securities expensed according to the Mark-to-Market method present a greater challenge because they are re-measured at each expense period from grant through the last vesting period. Accordingly, such securities require a new set of valuation assumptions at each expense period. The Mark-to-Market expensing method is typically applied to securities issued to non-employees.

If a company modifies a security's vesting schedule (usually by accelerating it) or extends post-termination exercise privileges, it becomes necessary to recalculate the expense. Similarly, the re-pricing of an underwater security will also call for a recalculation.

WORDS TO THE WISE:

AVOIDING PITFALLS

Beware the pitfalls and landmines of expensing as you get ready to record your share-based payments. While modifications or re-pricings may be a corporate necessity in order to retain qualified and valued personnel, management must always understand the implications of such actions. CFOs should consult with both legal and audit advisors in order to understand and avoid unnecessary expensing obstacles before embarking on a path of security revision.

GET SET: DETERMINE VALUATION ASSUMPTIONS

Once you've accurately identified the securities to be expensed and categorized them by Grant Date or Mark-to-Market, it's time to set the valuation assumptions. Incentive stock options and non-statutory stock options expensed under FAS 123R must have valuation assumptions applied to them. The expense computation for Restricted Stock uses an intrinsic value calculation. For grants expensed using the Grant Date method, intrinsic value is calculated as the difference between the grant date FMV and the grant exercise price. For grants expensed using the Mark-to-Market method, intrinsic value is calculated as the difference between the expense report period FMV and the grant exercise price. For both expense methods, no other parameters are required for an intrinsic value computation.

Aside from the grant data itself, valuation assumptions have the greatest impact on the expense calculation. Without an adequate software solution, determining the assumptions can be the most time-consuming step of the expense process, but it is essential that companies get it right.

For example, the expected term of a security directly drives that security's interest rate and volatility, with both of the latter assumptions being determined based on a period that matches the expected term assumption. Accordingly, an incorrect expected term will cause a continuous downstream error flow, resulting in a miscalculation of expense. Either an under-computed expense or an over-computed expense could result in restated financials.

Pursuant to the Statement, fair value is calculated once for grants using the Grant Date expense method, based on the valuation assumptions and fair market value of the company on the security's grant date. Accordingly, the valuation assumptions are input only once for each Grant Date grant.

However, the fair value for Mark-to-Market grants must be re-measured for each reporting period from the date of grant through the last vesting period based on the requirements of EITF 96-18.

Private companies must determine three standard valuation assumptions:

- Expected Term
- Interest Rate
- Volatility

A note about dividends: As most private companies do not pay dividends, this valuation assumption is rarely necessary. However, any company that does pay dividends, public or private, must incorporate them in its fair value calculation.

While not part of the grant data, the company's fair market value on the date of grant (for Grant Date securities) or on the expense report period date (for Mark-to-Market securities) is also an important component in the fair value calculation.

Here is a brief overview of how each of the standard assumptions plays a part in the fair value calculation:

EXPECTED TERM

Paragraph A27 of the Statement provides the definition for expected term:

“The expected term of an employee share option or similar instrument is the period of time for which the instrument is expected to be outstanding (that is, the period of time from the service inception date to the date of expected exercise or other expected settlement).”

Typically, the service inception date is the grant date, but it can precede the grant date in some situations (see Paragraph A79 of the Statement). Accordingly, the expected term covers the grant date through the date which the company expects the security to be either exercised or settled in some other manner (settlement may depend on the type of security involved). The expected term can never be less than the total vesting life of the grant.

The Statement goes on to set forth factors that can be used in determining the expected term, including:

- Vesting period of the grant
- The company's exercise history (both pre- and post-termination)
- Expected volatility
- Blackout periods and arrangements for automatic exercise during such periods
- Personnel information (age, length of service, location, etc.)

For a private company, exercise history may not be available in sufficient numbers due to a lack of liquidity in its shares. Accordingly, Paragraph A29 of the Statement provides for an alternative means to calculate the expected term:

“However, expected term might be estimated in some other manner, taking into account whatever relevant and supportable information is available, including industry averages and other pertinent evidence such as published academic research.”

An Alternative Way to Calculate Expected Term

Acknowledging the difficulty in obtaining information about the exercise history of other companies, in March 2005, the SEC responded to the need for an alternative expected term calculation methodology with Staff Accounting Bulletin 107 (SAB 107).

The Interpretive Response to Question 6 of Subsection D2 of SAB 107 provides the “simplified” method for the expected term calculation for grants made to employees (such grants are expensed and designated as Grant Date grants) and deemed to be “plain vanilla” per the following criteria:

- Granted at-the-money
- Exercisability is based on service vesting, with no performance conditions
- Unvested shares are forfeited at termination
- Vested shares have a limited post-termination exercise period
- The share options are nontransferable and nonhedgeable

The SAB 107 simplified formula is: $\text{expected term} = ((\text{vesting term} + \text{original contractual term}) / 2)$.

As an example, a 37,500 share grant dated 09/15/08 (grant expiration date 09/15/18), vesting 25 percent annually over four years with a vesting start date of 09/01/08 results in an expected term of 6.25 years.

The table below uses the simplified formula with the added computation for “Average Shares Vested” during the “Vesting Year”. As you can see in example 1, the result is the same Expected Term of 6.25 years.

For a standard vesting schedule of a one-year cliff followed by monthly installments for three years, the above formula is applied to each of the 37 vesting tranches, with a result of approximately 6.08 years for the expected term. By applying the formula across each vesting tranche, and including the Average Shares Vested for each tranche, you are able to reduce the expected term to its lowest calculable figure.

EXAMPLE 1

Vesting Tranche	Vesting Date	Vesting Shares	Contractual Life Years	Vesting Year	Tranche Expected Term	Average Shares Vested
1	09/01/2009	9,375	10	1.0000	5.5000	51562.500
2	09/01/2010	9,375	10	2.0027	6.0014	56263.125
3	09/01/2011	9,375	10	3.0027	6.5014	60950.625
4	09/01/2012	9,375	10	4.0027	7.0014	65638.125
		37,500				234414.375

Expected Term = (234414.375 / 37,500) = 6.25

Non-employee grants and grants that have performance conditions attached to the vesting schedule should not use the SAB 107 simplified method to calculate expected term. These grants are usually expensed and designated as Mark-to-Market grants. In most cases, the rules require the use of the full contractual life (or remaining contractual life) as the expected term when determining the fair value of such options.

Remaining Contractual Term

Remaining Contractual Term (RCT) is another method of calculating the expected term of a security. Like the expected term calculated using SAB 107, RCT cannot be less than the vesting life of the grant. For example, if the vesting schedule covers a four year period, then the RCT cannot be less than four years.

The RCT is used as the expected term for securities expensed using the Mark-to-Market methodology required by EITF 96-18, in which the grant's fair value is re-measured at each reporting period from grant through its last vest. This expensing method typically applies to securities issued to non-employees and option grants with performance vesting (for both employees and non-employees). Although some companies calculate expected term using SAB 107 for their Mark-to-Market securities,

this may not be appropriate and should be reviewed with the company's auditors.

The RCT calculation is based on the expensing period, vesting dates that occur within that period, the shares vesting on those vest dates and the expiration date for each grant.

The RCT is always the greatest possible measure of expected term and will always give the biggest possible value for this assumption. However, that result is normal and predictable. If the RCT is higher, the expense usually will be higher, too.

INTEREST RATE

The interest rate of a security is the second valuation assumption required in the computation of a security's fair value. Paragraph A25 of the Statement provides information on the interest rate assumption (see the Glossary).

Since zero-coupon rates typically are not readily available on an historical basis (and for most fair value calculations the interest rate is tied to the grant date, which is usually an historical date), companies may consult the federal government's published rates at

WORDS TO THE WISE:

IS THERE A SHELF LIFE FOR SAB 107?

The SAB 107 simplified method for calculating expected term initially was available only for grants issued through December 31, 2007. However, just before that expiration date the SEC announced SAB 110 which provided an open-ended extension for the use of the simplified method under certain specified circumstances, with the result being that most private companies will meet the SAB 110 criteria for continued use of that method.

Although SAB 110 does not state a new deadline for using the simplified method, the SEC staff "... does not expect that such a simplified method would be used for share option grants when more relevant detailed information becomes widely available."⁷ The SEC further explained, "Various parties, including actuaries, valuation professionals and others..." are currently working to gather "...data about exercise patterns of employees in similar industries and/or situations...". From the foregoing, one can surmise that when such data is made public, the simplified method will become obsolete.

www.federalreserve.gov/releases/h15/data.htm. On that site, the Treasury Constant Maturities are the rates of choice, and have been approved and accepted by audit firms as an appropriate substitute for the zero-coupon rate.

For grants expensed using the Grant Date methodology, the interest rate depends on two values: the expected term of the security (see Statement Paragraph A25) and the security's grant date.

For grants whose expense must be re-measured pursuant to EITF 96-18, and, accordingly, use the Mark-to-Market methodology, the interest rate depends on (a) the expected term of the security (see Statement Paragraph A25), (b) the expense reporting period, and (c) vesting dates within such period.

VOLATILITY

The fair value calculation uses expected volatility as a valuation assumption because an option's value depends on potential share returns over the option's term.

Some private companies with longstanding internal markets may have sufficient information on which to base

WORDS TO THE WISE:

SAB 107 AND NON-EMPLOYEE GRANTS

Although some companies use SAB 107 for both employee and non-employee grants, based on the restrictions of SAB 107 this could be a risky approach. In order to make sure that they do not run afoul of the rules, companies should confer with their auditors or consultants on the calculation of expected term for non-employee grants and performance-vesting options and be prepared to justify their usage of SAB 107 for such grants.

a reasonable and supportable estimate of the expected volatility of their share prices; however, most private companies need to use an alternative method. Paragraph A22 states that such companies may base their expected volatility on the average volatilities of otherwise similar public entities. The glossary at the end of this paper lists the factors set forth in the Statement to be considered when estimating expected volatility.

Forfeiture Rate

FAS 123R requires a company to estimate the number of shares expected to vest, and which, therefore, will have to be expensed. This estimate is commonly computed using an assumed forfeiture rate. The pertinent section of Paragraph 43 of the Statement reads as follows (emphasis added):

“The total amount of compensation cost recognized at the end of the requisite service period for an award of share-based compensation shall be based on the number of instruments for which the requisite service has been rendered (that is, for which the requisite service period has been completed). An entity shall base initial accruals of compensation cost on the **estimated number of instruments for which the requisite service is expected to be rendered.**”

The forfeiture rate is a forward-looking estimation that in most instances is based on a company's historical events plus internal knowledge of what is expected to occur in the future. For example, a rapid increase in value would motivate employees to remain longer with the firm thus reducing the forfeiture rate. Similarly, internal knowledge of a layoff planned for the current year, a planned large increase in headcount or a company financing may also affect the forfeiture rate.

Because a company's circumstances are always fluid, it must re-visit the forfeiture rate at least annually to ensure that it is applicable for the current expense reporting period and update its securities accordingly with the new forfeiture rate. Paragraph 43 continues (emphasis added):

“ ... That estimate shall be revised if subsequent information indicates that the actual number of instruments is likely to differ from previous estimates. The cumulative effect on current and prior periods of a change in the estimated number of instruments for which the requisite service is expected to be or has been rendered shall be recognized in compensation cost in the period of the change.”

While the forfeiture rate is an important piece in the expense puzzle, unlike the underlying grant values and the valuation assumptions, it does not impact the fair value calculation. The fair value (also referred to in the Statement as the “Call Option Value per Share”) of the grant is determined using the grant data (number of shares, price, vesting, etc.) plus the fair market value on

the grant date / expense period date plus the valuation assumptions. The fair value is then used to calculate the total expense of the grant.

The relationship between the fair value calculation and the forfeiture rate is a source of confusion for many companies. The fair value calculation is made independently of the shares expected to vest (which are determined by means of the forfeiture rate). Accordingly, the forfeiture rate is applied outside of the fair value calculation and is connected only to the expense accrual calculation of the grant shares and its vesting schedule. The forfeiture rate is not a “how much” dollar value, but rather a “when” time value for recognizing the dollar value. In other words, while the fair value will determine the total expense of a grant, the forfeiture rate will help determine the period(s) in which that dollar value expense will be recognized.

Pursuant to Paragraph A98 of the Statement, the forfeiture rate is applied exponentially across the grant's vesting schedule and determines how the total expense of the grant shares is allocated over the vesting life of the grant.

PAIN BUT NO GAIN

The calculations necessary to get set for expensing can be time consuming and require a particular knowledge base in order to justify their use with auditors.

WORDS TO THE WISE:

WHAT IS THE IMPACT OF THE FORFEITURE RATE?

Even though a company must determine an initial forfeiture rate and then at least annually re-determine the rate based on changing circumstances, it must always heed the penultimate sentence of Paragraph 42 of the Statement (emphasis added), which states that

regardless of the forfeiture rate, once shares vest, they must be expensed:

“However, the amount of compensation cost recognized at any date must at least equal the portion of the grant-date value of the award that is vested at that date.”

Accordingly, it is typical for the forfeiture rate to have its greatest impact on shares expensed prior to vesting (called “cliff period” expensing, a standard practice for many, if not most, private companies).

Multiple spreadsheets for vesting scenarios, research into federal rates and conversion of those rates into usable interest rates and volatility calculations covering numerous time periods and peer companies all add to the difficulty with these expense calculations. Add to that the additional headache of determining (and re-determining) the forfeiture rate (non-vested cancellations, outliers, time periods considered, etc.), and it is not unusual for a company to devote an entire week to this effort. They then may spend additional days to address auditor questions.

If you attempt to manage your FAS 123R work in a spreadsheet format, the going gets tough. Separate, static spreadsheets quickly become unwieldy and can lead to multiple inconsistent versions. Formula mistakes and varying interpretations can be difficult to find and correct. What's more, your auditor is required to review your spreadsheet in detail validating that each formula in each cell reflects the requirements of the standard. This is an expensive proposition.

For this reason most large audit firms are advising their clients to take an alternative approach—one that minimizes the amount of time it takes to gather complete and accurate data and then calculate the expense you need to report. Equity-tracking software automates each step of the expensing process—security tracking, assumption calculation and expense computation—to help companies pass audits with ease, while fostering transparency and accountability and saving precious time.

By automatically calculating and uploading assumption values for expected term, interest rates and volatility and calculating forfeiture rate values with the ability to easily determine and remove outliers, equity-tracking software can dramatically reduce the time it takes to prepare for the expense calculation. Furthermore, since the best of these software tools have already been through the audit review process with numerous firms, no further verification of your specific calculations is required.

TIME TO GO: CALCULATE THE EXPENSE

Once you have completed the hard work of recording securities and setting valuation assumptions, you are ready to calculate the expense that the company will record on its financial statement. With an equity-tracking application to automate the process, calculating the expense should be an easy step. The key is to choose the right tool for the job.

CHOOSING THE RIGHT SOFTWARE SOLUTION

Equity-tracking software should be capable of providing the three basic types of expense calculations required by the Statement

- **APB25:** This calculation may or may not be required for your company depending on the transition method used (see Paragraphs 69–85 of the Statement) when your company moved to expensing under FAS 123R
- **Expense for Grant Date Grants:** The typical calculation method for employee grants
- **Expense for Mark-to-Market Grants:** The typical calculation method for non-employee grants

In addition to the expense calculations, FAS 123R requires certain disclosures to enable users of financial statements to understand the calculations and give a clearer picture of the company's financial condition. Paragraph A240 of the Statement sets forth certain minimum disclosures to be included in your financials. (Note that in order to satisfy the objectives of the Statement, additional disclosures may be necessary.)

The following list is not exhaustive, but gives a general idea of the comprehensiveness of the minimum disclosures that your equity-tracking software should be able to provide. (See Paragraph A240 for the complete inventory).

The number, weighted-average exercise price, weighted-average grant-date fair value and intrinsic value of some or all of the following:

- Shares granted during the year
- Shares exercised during the year
- Shares forfeited during the year
- Shares expired during the year
- Shares outstanding at the beginning of the year
- Shares outstanding at the end of the year
- Shares unvested exercisable during the year
- Shares vested exercisable during the year
- Shares exercisable during the year
- Shares vested during the year

Finally, expense calculations, disclosure obligations and general ledger accounting entries all must be able to withstand the scrutiny of auditors. To complete the expensing process, your software solution should also deliver the calculations necessary to generate the numbers required for the company's general ledger accounting entries relating to security issuances.

WORDS TO THE WISE:

THREE STEPS TO FAS 123R SUCCESS

Follow these steps to reach the FAS 123R finish line as quickly and painlessly as possible:

- 1 Organize** your documentation so that you are ready for expensing
- 2 Understand** the regulations so that your assumptions are verifiable and set for expensing
- 3 Perform** the expense calculation so that you can go to the audit with confidence

Your work papers, formulas, and back-up documentation must be in order and accessible at all times. Spreadsheets in multiple files, board minutes that are not maintained in minute books and personnel records that are not securely filed create an air of undisciplined chaos instead of the controlled and efficient environment you want to project.

SVB ANALYTICS EPROSPER AND FAS 123R

Equity-tracking software applications enable you to create one record of securities expense that can be shared among management, lawyers, investors and auditors.

The SVB Analytics eProsper CapMx® solution is an equity-tracking software application that streamlines the record-keeping and reporting of all corporate equity and capitalization, including stock, restricted stock, options, warrants and convertible debt. With easy-to-understand reports and automatic adjustments for actual vesting and cancellations of stock options, its FAS 123R module helps companies record securities, set valuation assumptions, calculate expenses and pass their audits without problems.

eProsper is majority owned by SVB Analytics, an SVB Financial Group (Nasdaq: SIVB) company. eProsper provides on-demand corporate equity administration, analytics and capitalization management software to private, venture-funded companies through its industry-leading, Web-based software, CapMx. SVB Analytics services also include fair market company valuations for private, venture capital-backed companies and venture capital firms. Find out how SVB Analytics eProsper can help your company prepare for a successful FAS 123R audit today. For more information contact sales@eprosper.com. More information can be found at www.svb.com/svbanalytics.

Glossary

The following terms are used in connection with expensing under FAS 123R and, in many instances, are defined in the Statement.

Interest Rate

Paragraph A25 of the Statement:

Option-pricing models call for the risk-free interest rate as an assumption to take into account, among other things, the time value of money. A U.S. entity issuing an option on its own shares must use as the risk-free interest rates the implied yields currently available from the U.S. Treasury zero-coupon yield curve over the contractual term of the option if the entity is using a lattice model incorporating the option's contractual term. If the entity is using a closed-form model, the risk-free interest rate is the implied yield currently available on U.S. Treasury zero-coupon issues with a remaining term equal to the expected term used as the assumption in the model. For entities based in jurisdictions outside the United States, the risk-free interest rate is the implied yield currently available on zero-coupon government issues denominated in the currency of the market in which the share (or underlying share), which is the basis for the instrument awarded, primarily trades. It may be necessary to use an appropriate substitute if no such government issues exist or if circumstances indicate that the implied yield on zero-coupon government issues is not representative of a risk-free interest rate.

Volatility

The Statement definition:

A measure of the amount by which a financial variable such as a share price has fluctuated (historical volatility) or is expected to fluctuate (expected

volatility) during a period. Volatility also may be defined as a probability-weighted measure of the dispersion of returns about the mean. The volatility of a share price is the standard deviation of the continuously compounded rates of return on the share over a specified period. That is the same as the standard deviation of the differences in the natural logarithms of the stock prices plus dividends, if any, over the period. The higher the volatility, the more the returns on the shares can be expected to vary — up or down. Volatility is typically expressed in annualized terms.

Volatility Calculation

Paragraph A32 of the Statement mandates the following factors to be considered in estimating expected volatility:

1. Volatility of the share price, including changes in that volatility and possible mean reversion of that volatility, over the most recent period that is generally commensurate with:
 - a. The contractual term of the option if a lattice model is being used to estimate fair value or
 - b. The expected term of the option if a closed-form model is being used

For example, in computing historical volatility, an entity might disregard an identifiable period of time in which its share price was extraordinarily volatile because of a failed takeover bid if a similar event is not expected to recur during the expected or contractual term. If an entity's share price was extremely volatile for an identifiable period of time, for instance, due to a general market decline,

Glossary

that entity might place less weight on its volatility during that period of time because of possible mean reversion.

2. The implied volatility of the share price determined from the market prices of traded options or other traded financial instruments such as outstanding convertible debt, if any.
3. For public companies, the length of time an entity's shares have been publicly traded. If that period is shorter than the expected or contractual term of the option, the term structure of volatility for the longest period for which trading activity is available should be more relevant. A newly public entity also might consider the expected volatility of similar entities. *A nonpublic entity might base its expected volatility on the expected volatilities of entities that are similar except for having publicly traded securities.* (emphasis added)
4. Appropriate and regular intervals for price observations. If an entity considers historical volatility in estimating expected volatility, it should use intervals that are appropriate based on the facts and circumstances and that provide the basis for a reasonable fair value estimate. For example, a publicly traded entity would likely use daily price observations, while a nonpublic entity with shares that occasionally change hands at negotiated prices might use monthly price observations.
5. Corporate and capital structure. An entity's corporate structure may affect expected volatility (Paragraph A21). An entity's capital structure also may affect expected volatility; for example, highly leveraged entities tend to have higher volatilities.

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- ¹ Paragraph A14 of the Statement: “This Statement does not specify a preference for a particular valuation technique or model in estimating the fair values of employee shares options and similar instruments. Rather, this Statement requires the use of a valuation technique or model that meets the measurement objective in paragraph 16 and the requirements in paragraph A8.”
- ² Office of Economic Analysis, SEC, Memorandum dated March 18, 2005.
- ³ Guidance for accounting for expensing of share-based payments to non-employees is not addressed by FAS 123R and, instead, is covered by Emerging Issues Task Force (EITF) 96-18, “Accounting for Equity Instruments That Are Issued to Other Than Employees for Acquiring or in Conjunction with Selling, Good or Services”.
- ⁴ Internal Revenue Code section 422, subparagraph (b) sets forth the requirements for a grant to be an incentive stock option. In addition to the exercise price not being less than the stock’s FMV on the grant date, section 422 provides, inter alia, that the option cannot have a life of more than 10 years, must be issued pursuant to a written plan, and cannot be transferable.
- ⁵ The FAS 123R Statement defines the “Requisite Service Period” as: “The period or periods during which an employee is required to provide service in exchange for an award under share-based payment arrangement. The service that an employee is required to render during that period is referred to as the requisite service. The requisite service period for an award that has only a service condition is presumed to be the vesting period, unless there is clear evidence to the contrary. If a n award requires future service for vesting, the entity cannot define a prior period as the requisite service period. Requisite service periods may be explicit, implicit, or derived, depending on the terms of the share-based payment award.”
- ⁶ While most private companies will use an independent third-party valuation provider, early-stage companies may qualify for the “illiquid start-up” safe-harbor whereby the valuation can be determined by anyone having “...significant knowledge, experience, education or training...”, and the company can rely on such appraisal so long as the company does not reasonably anticipate a public offering within 180 days or a change in control within 90 days of the valuation.
- ⁷ SEC Staff Accounting Bulletin No. 110, Share-Based Payment (Topic 14), December 21, 2007, which, effective January 1, 2008, amends and replaces in its entirety subsection D2, Question 6 of SAB 107.
- ⁸ SEC Staff Accounting Bulletin No. 107, Share-Based Payment (Topic 14), March 29, 2005, subsection D2, Question 5.

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SVB Analytics offers valuation and corporate equity administration services to SVB Financial Group's core constituencies of private, venture capital-backed companies and venture capital firms. SVB Analytics' services offerings include fair market IRC409A/FAS123R valuations and corporate equity tracking and administrative services. SVB Analytics is a member of global financial services firm SVB Financial Group, with Silicon Valley Bank, SVB Capital, SVB Global and SVB Private Client Services, which serve the unique needs of technology, life sciences and private equity firms. More information on the company can be found at www.svb.com.

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