

Radford's Approach to Valuing Equity Compensation

An important element of determining your equity pay strategy is gathering, valuing and using equity compensation market data.

Designing effective equity programs is one of the most important roles for human resources and compensation professionals. Equity vehicles have shifted in the past decade. Stock options—once a pervasive element of pay packages for technology and life sciences companies—have been increasingly replaced by restricted stock and restricted stock units as well as performance shares for executives.

Before companies can design an effective equity program they need to gather market data and have a common methodology for valuing that data. In order to provide our clients the most comprehensive information available, Radford analyzes and reports equity data using several methodologies. Each methodology has strengths and weaknesses, depending on the facts and circumstances of your company. In this paper we shed light on the best practices for equity data valuation and application to assist in designing your equity plans.

Radford's Different Methodologies

Radford's equity compensation data comes from the [Radford Global Technology Survey](#), [Radford Global Life Sciences Survey](#), and [Radford Global Sales Survey](#). Our discussions of methodologies in this paper assume the data is used for publicly traded companies.

Radford reports equity compensation data using six different approaches, which we will describe in greater detail below. Please note that any Radford client can request specialized Custom Reports applying different assumption sets, if desired.

- Black-Scholes Value (B-S)*
- Face Value*
- Net Present Value (NPV)
- Number of Shares
- Percent of Base Salary
- Percent of Shares Outstanding

** Methodology used for "calculated value" in survey results (B-S for options, Face Value for time-based and performance-based restricted stock or restricted stock units)*

Black-Scholes Value (B-S) **Used For: Stock Options**

The Black-Scholes (B-S) valuation method represents the grant date fair value accounting standard used in financial disclosure documents, and is the default method for valuing stock options in survey results where the term "calculated value" appears. In contrast to the NPV method below which assumes a constant rate of stock price growth for all shares over time, the Black-Scholes method values stock options based on each company's historical stock volatility and equity holding behaviors.

Radford surveys value options using publicly reported company stock option expense/accounting values (ASC Topic 718 or IFRS 2). These figures are used to estimate the value of stock options (as a percentage of face value). Each company's option valuation assumptions consider factors such as stock price volatility, expected option life (likelihood of exercise), risk-free rate assumption (typical alternative investment yield) and annual stock dividend (if applicable). Beginning in the third quarter of 2017, these company-specific valuation assumptions are obtained from the ASC 718 or IFRS 2 disclosures in each company's most recent annual financial filings.

When aggregating large sets of survey data, we believe it is important to use a consistent approach across companies to provide a level playing field tied to reported accounting assumptions for estimating equity value opportunity. Since company-specific valuation assumptions are used, the resulting option value as a percent of the stock's face value varies from company to company.

Overall, when we examine all of the companies in our database, the average B-S value as a percent of the face value of the stock is approximately 35%.

Face Value

Used For: Time-Based and Performance-Based Restricted Stock or Restricted Stock Units (referred to collectively as "Restricted Stock" in this paper)

Face value is simply the fair-market price of the company's stock on the date of grant, or stated another way, the number of shares times the stock price. Face value is universally used for "full-value" awards such as restricted stock or performance shares: basically, any award that doesn't require payment of a material exercise price. It is also the accounting standard for Topic 718 reporting purposes (although adjustments are allowed for dividends and performance-based vesting requirements).

Net Present Value (NPV)

Used For: Stock Options

Net Present Value (NPV), attempts to predict the future spread of an option and discounts it back to present day dollars to arrive at a grant date value. This simplistic valuation method was more popular in the late 1990s before B-S became the accounting standard for grant date fair value. NPV uses a much more basic calculation assuming straight-line stock price growth from grant date to exercise date. Although this was once a common valuation method, it is rarely used nowadays due to the widespread use and acceptance of the B-S model.

Here are the assumptions we use for NPV so that the same growth rate is used for all companies in the database:

- Holding period of four years

- Annualized stock price growth rate of 12%, consistent with long-term returns for broad stock market indices
- Risk-free rate of return of 3.0%

Total long-term incentive value can only be computed by adding the face value of restricted stock with one of the calculated option values (B-S or NPV). Because the same growth assumption is applied to all companies under our NPV method, the resulting value of an at-the-money option is always 51% of the face value of the underlying stock.

As an example, a company awards an employee 1,000 stock options at a strike price of \$10.00 when the underlying stock is also trading at \$10.00 (option is awarded “at-the-money”).

Number of Shares: 1,000
Stock Price: \$10.00
Exercise Price: \$10.00
Holding Period (T): 4 years
Annual Growth (G): 12%
Risk-Free Rate (RFR): 3.0%

$$\frac{\text{Stock Price} \times [1+G]^T - \text{Exercise Price} \times \text{Number of Shares}}{(1+RFR)^T} = \text{NPV}$$

$$\frac{(\$10.00 \times [1+.12]^4) - \$10.00 \times 1,000}{(1+.030)^4} = \$5,096$$

Number of Shares Used For: Restricted Stock and Stock Options

Reporting the raw number of shares is not exactly a valuation technique, but it does often reflect the employee’s perspective when assessing the “size” of an award. In many cases, an employee will compare a new award to the number of shares he or she received historically—either at the same company or at a previous employer. While we typically do not recommend using number of shares data alone, it is often valuable to use this information as a reference in combination with one of the valuation methods described above to help determine the competitive sizing of equity awards.

Radford employs a calculation that combines the number of options shares with the number of restricted shares awarded. However, when reporting the total number of options plus restricted shares granted it would be misleading to simply add the raw numbers of each vehicle together. A restricted stock share is more valuable than an option share because the employee doesn’t have to pay an exercise price to receive it. Therefore, we calculate total “option equivalents” when reporting the number of options plus restricted shares. Restricted stock shares are converted to option equivalents using the following ratios in the chart below, which are based on the company-specific B-S value as a percent of face value.

Figure 1
Option-to-Restricted Stock Conversion Ratios

B-S Value as a % of Face Value	Number of Option Equivalents for Each Restricted Stock Share
Less than 25%	4.0
25% to 49%	3.0
50% to 75%	2.0
Greater than 75%	1.5

To illustrate how conversation ratios are used, let’s say a company awards an employee a mix of 1,000 stock options and 500 shares of restricted stock. The B-S value of the company’s options is 60% of face value, resulting in a ratio of two option equivalents to one share of restricted stock. Total option equivalents granted to this employee was 2,000 [1,000 options + (500 restricted x 2)].

Percent of Shares Outstanding
Used For: Restricted Stock and Stock Options

This method converts the number of shares granted to a percent of the total common shares issued and outstanding at the company—also known as the “piece of the pie” approach. In this instance, restricted shares are again converted to option equivalents using the same ratios discussed in the table above.

Using the same award mix as above (1,000 stock options and 500 shares of restricted stock), and assuming 50 million total common shares issued and outstanding, the following calculation is used to determine % of shares outstanding:

$$\frac{\text{Options} + (\text{Restricted Stock} \times \text{Conversion Ratio})}{\text{Total Common Shares Issued and Outstanding}} = \% \text{ of Shares Outstanding}$$

Example:

$$\frac{1,000 + (500 \times 2)}{50,000,000} = .004\%$$

Percent of Base Salary
Used For: Restricted Stock and Stock Options

This alternative valuation method translates the face value or calculated value (B-S) into a percentage of the base salary of the incumbent (for India roles only, this is calculated as a percent of total fixed compensation). Again, in cases where a mix of options and restricted stock is involved, total equity incentives are computed by converting and then adding the restricted stock face value with the Black-Scholes calculated option values.

Evaluation of Methodologies

While there is no single correct methodology for using equity compensation data, there are strengths and weaknesses to each approach. The following section will evaluate the use of total long-term incentive value (value of options, restricted stock, performance shares and long-term cash) under the three most widely used methodologies:

- B-S value of options + face value of restricted stock + LTI cash (“calculated value” for short)
- NPV value of options + face value of restricted stock + LTI cash (NPV for short)
- Quantity (number of shares or % of shares outstanding, cash not included)

In today’s equity compensation environment, we recommend using total LTI value (options, restricted stock, and long-term cash) in any compensation planning exercise to capture the full market value being issued.

As we mentioned in the introduction, historically, stock options represented the vast majority (if not 100%) of the vehicle mix at most technology and life sciences companies. Due to the implementation of Topic 718 option expense recognition, along with shareholder pressures to reduce dilution and other corporate governance concerns, restricted stock now makes up a much more significant portion of the LTI mix. Long-term cash, while still relatively rare, is also captured by Radford in total LTI values.

Figure 2 outlines some high-level considerations for each approach.

Figure 2 Valuation Methodology Considerations

Evaluation Criteria	Calculated Value (B-S)	Net Present Value	Quantity
Ease of use by compensation/HR staff	Fair	Fair	Good
Ease of understanding by employees	Poor	Fair	Good
Consistent with accounting/SEC disclosure rules	Good	Poor	Poor
Public company, low stock price volatility	Good	Fair	Fair
New public company, high stock volatility	Good	Fair	Fair

Ease of Use: The B-S portion of the total calculated value is a more complex calculation for compensation/HR professionals to use in analyzing and developing LTI programs, but values are readily obtainable from stock administration software or online tools. In general, we should all be familiar with how changes to underlying assumptions can affect the outcome of the calculation. Expected volatility and expected option life (holding period) are the two most sensitive inputs: an increase in either will lead to a higher B-S value. But getting a feel for just how sensitive the result will be to changes in these two assumptions takes experience. Even seasoned

option valuation experts can become frustrated with the complexities of B-S, but because it has become the standard for accounting reporting, it is now the most widely used approach. Conversely, NPV is more intuitive than B-S because one can visualize a simple annual growth in stock price over time but it is too simplistic and doesn't reflect company-specific issues nor the wide range of possible outcomes. Quantity of shares is the easiest to use, but is too simplistic to be used in a vacuum.

Ease of Employee Understanding: Most employees are not familiar with valuation techniques like B-S or NPV and simply look at the number of shares granted compared to historic awards or awards to their colleagues. This is why we've traditionally seen a majority of companies simply communicate the number of shares in a new award to employees without attempting to communicate a calculated value (even though a calculated value will be used by the company to determine the size of the award). However, with the increasing prevalence of restricted stock, there is less need to explain a complex B-S or NPV model. Restricted stock is simply the face value of the company's stock on the date of grant. As a result of this simplicity, companies using restricted stock are increasingly communicating value to recipients.

Accounting/Disclosure Consistency: If consistency between compensation planning and financial/SEC disclosure is desired, then B-S is the best choice. However, we caution that compensation objectives may vary from disclosure objectives. In compensation planning, we are attempting to use the most reasonable calculation to make consistent comparisons across broad sets of peer company data to ensure our rewards are competitive. But in financial/SEC disclosures, equity valuations are an expense to earnings. In this application, finance is focused on the assumptions that best represent the accounting fair value, with an eye toward minimizing the expense impact while remaining in compliance. Peer comparisons are rarely made when establishing the best assumptions for financial reporting. As a result, "consistency" between finance and HR in terms of B-S values being used may lead to contradictory results: a lower per-option value will require more shares to reach competitive total LTI value, increasing dilution and ultimately, total accounting costs.

Organizational Maturity: B-S is highly dependent on the accuracy of its underlying volatility assumption. More mature, stable public companies are better able to predict future volatility and can be more comfortable relying on B-S results. Less mature public companies with a volatile stock price are more likely to have B-S values that are artificially high compared to their peers—even when such volatility may cause significant underwater options resulting in no real gains for employees.

So which approach is right for your company? Most public companies will want to use "calculated value" based on B-S for options because it is the most widely used and accepted approach and the results reflect reasonable potential value to employees. However, it still may be prudent to look at quantity (or %) of shares in addition to value. In the end, it often comes down to which method yields the fewest disconnects between your company and the market data. It is important to note that when comparing company data to market data, we recommend that you compute your B-S or NPV using the same valuation assumptions as those used in the market data in order to have an "apples-to-apples" comparison.

Next Steps

There are different approaches companies can take to valuing equity compensation data. The best approach will depend heavily on the type of equity vehicle in question in addition to other factors, including how you want to communicate this value to employees and consistency with accounting standards and past practice. The

methodologies discussed in this paper are intended to serve as an overview of how Radford values equity in our suite of global compensation surveys and how the methodologies are then applied in our consulting services.

Of course there are many other issues in addition to the size of awards to be considered when designing an overall equity compensation strategy. These include analyzing participation levels, determining appropriate mix between equity vehicles, setting the relationship between new-hire and ongoing grants, equity burn rate modeling, and establishing global differentials.

To learn more about participating in a Radford survey, please [contact our team](#). To speak with a member of our compensation consulting group, please write to consulting@radford.com.

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