

Share-Based Payment > Best Practice Series

Dow 30 ESO Valuation Disclosure 2010

The Overview

As part of our Share-Based Payment (SBP) Best Practice Series, Montgomery Investment Technology is pleased to provide you with our research which focuses on the valuation techniques and disclosures based on the 2010 10-K filings of the Dow Jones Industrial Average companies. We have compiled a report illustrating how the Dow 30 companies are complying with Accounting Standards Codification 718 (formerly FAS 123R). This report reveals the varying degree of refinement in the valuation process that has been applied to Employee Stock Options (ESO).

The Standard

In 2004, the Financial Accounting Standards Board provided guidance in FAS 123R that a range of reasonable assumptions would likely be estimated and disclosed in the footnotes of the financial report. Later in 2006, the Securities and Exchange Commission in SAB 107 projected that over time as issuers and accountants gained more experience in applying Share-Based Payment fair value accounting, particular approaches would begin to emerge as best practices and that the range of reasonable conduct, conclusions and methodologies would likely narrow.

The Practice

In this study, we find that the ESO contractual term (7-10 years) and vesting period (3-5 years) of the Dow 30 companies are quite similar. But we observe that the valuation assumptions and methodologies diverge. Here are some examples:

- 20 companies used the Black-Scholes-Merton/Closed-Form model to value ESOs; six companies used the Binomial/Lattice method, one company used Monte Carlo Simulation and three companies did not grant any options in 2010.
- Three companies chose a 7 or 8 year contractual term. All other companies had the 10 year contractual term for their stock options.
- The 2010 average expected term remained at about 6 years. The spread widened to 2.5-8.8 years from 3.4-8.7 years in 2009.
- Three companies used a suboptimal exercise factor within the Binomial/Lattice method and Monte Carlo simulation.
- Three companies estimated expected volatility based on implied volatility exclusively. Thirteen other companies used implied volatility as part of their expected volatility estimation.
- One company has calculated the skewness and kurtosis of the stock price time series.

To download a free copy of our complete workbook, including links to the 10-K filings, [click here](#).

The Future

As the Dodd-Frank Act and global accounting convergence has provided a roadmap to regulatory reform, this raises the issues of:

- How will the convergence of U.S. Generally Accepted Accounting Principles (GAAP) and the International Financial Reporting Standard (IFRS) effect SBP financial reporting (final adoption date pending)?
- How will financial reform legislation and new SEC regulations impact the fair value accounting process and valuation practices?
- How will the Dodd-Frank Act Section 955 (Disclosure Regarding Director and Employee Hedging) impact a company's compensation plan?

While the guidance for recognizing the fair value of SBP awards has been established, there is still room for refinement of the valuation process. For example, many international companies have migrated from the Black-Scholes model to the lattice and Monte Carlo methods, whereby a greater range of assumptions can be incorporated.

MITI has performed extensive research related to these issues, and has published a series of [working papers](#). If you wish to consider alternative SBP valuation techniques and to discuss the above topics with one of our valuation specialists, please contact us at 610-688-8111. We also welcome your questions and comments at miti@fintools.com. Thank you for your feedback!

References

FASB Accounting Standards Codification, Topic 718, Compensation – Stock Compensation

718-10-55-16 A lattice model (for example, a binomial model) and a closed-form model (for example, the Black-Scholes-Merton formula) are among the valuation techniques that meet the criteria required by this Topic for estimating the fair value of employee share options and similar instruments. A Monte Carlo simulation technique is another type of valuation technique that satisfies the requirements in paragraph 718-10-55-11. Other valuation techniques not mentioned in this Topic also may satisfy the requirements in that paragraph. Those valuation techniques or models, sometimes referred to as option-pricing models, are based on established principles of financial economic theory. Those techniques are used by valuation professionals, dealers of derivative instruments, and others to estimate the fair values of options and similar instruments related to equity securities, currencies, interest rates, and commodities. Those techniques are used to establish trade prices for derivative instruments and to establish values in adjudications. As discussed in paragraphs 718-10-55-21 through 55-50, both lattice models and closed-form models can be adjusted to account for the substantive characteristics of share options and similar instruments granted to employees.

718-10-55-23 There is likely to be a range of reasonable estimates for expected volatility, dividends, and term of the option. If no amount within the range is more or less likely than any other amount, an average of the amounts in the range (the expected value) shall be used. In a lattice model, the assumptions used are to be determined for a particular node (or multiple nodes during a particular time period) of the lattice and not over multiple periods, unless such application is supportable.

718-10-55-39 A closed-form model, such as the Black-Scholes-Merton formula cannot incorporate a range of expected volatilities over the option's expected term (see paragraph 718-10-55-18). Lattice models can incorporate a term structure of expected volatility; that is, a range of expected volatilities can be incorporated into the lattice over an option's contractual term. Determining how to incorporate a range of expected volatilities into a lattice model to provide a reasonable fair value estimates is a matter of judgment and shall be based on a careful consideration of the factors listed in paragraph 718-10-55-37 as well as other relevant factors that are consistent with the fair value measurement objective of this Topic.

Staff Accounting Bulletin 107

The staff recognizes that there is a range of conduct that a reasonable issuer might use to make estimates and valuations and otherwise implement Statement 123R, and the interpretive guidance provided by this SAB, particularly during the period of the Statement's initial implementation. Thus, throughout this SAB the use of the terms "reasonable" and "reasonably" is not meant to imply a single conclusion or methodology, but to encompass the full range of potential conduct, conclusions or methodologies upon which an issuer may reasonably base its valuation decisions. Different conduct, conclusions or methodologies by different issuers in a given situation does not of itself raise an inference that any of those issuers is acting unreasonably. While the zone of reasonable conduct is not unlimited, the staff expects that it will be rare when there is only one acceptable choice in estimating the fair value of share-based payment arrangements under the provisions of Statement 123R and the interpretive guidance provided by this SAB in any given situation. In addition, as discussed in the Interpretive Response to Question 1 of Section C, Valuation Methods, estimates of fair value are not intended to predict actual future events, and subsequent events are not indicative of the reasonableness of the original estimates of fair value made under Statement 123R. Over time, as issuers and accountants gain more experience in applying Statement 123R and the guidance provided in this SAB, the staff anticipates that particular approaches may begin to emerge as best practices and that the range of reasonable conduct, conclusions and methodologies will likely narrow.

[Financial Accounting Standard No. 123\(R\)](#)

A20. There is likely to be a range of reasonable estimates for expected volatility, dividends, and term of the option. If no amount within the range is more or less likely than any other amount, an average of the amounts in the range (the expected value) should be used. In a lattice model, the assumptions used are to be determined for a particular node (or multiple nodes during a particular time period) of the lattice and not over multiple periods, unless such application is supportable.

A33. A closed-form model, such as the Black-Scholes-Merton formula, cannot incorporate a range of expected volatilities over the option's expected term (paragraph A15). Lattice models can incorporate a term structure of expected volatility; that is, a range of expected volatilities can be incorporated into the lattice over an option's contractual term. Determining how to incorporate a range of expected volatilities into a lattice model to provide a reasonable fair value estimate is a matter of judgment and should be based on a careful consideration of the factors listed in paragraph A32 as well as other relevant factors that are consistent with the fair value measurement objective of this Statement.

A240.

e. (2) (b) Expected volatility of the entity's shares and the method used to estimate it. An entity that uses a method that employs different volatilities during the contractual term shall disclose the range of expected volatilities used and the weighted-average expected volatility.

A242. In addition to the information required by this Statement, an entity may disclose supplemental information that it believes would be useful to investors and creditors, such as a range of values calculated on the basis of different assumptions, provided that the supplemental information is reasonable and does not lessen the prominence and credibility of the information required by this Statement. The alternative assumptions should be described to enable users of the financial statements to understand the basis for the supplemental information.

B241. The minimum disclosures specified in paragraph A240 (f) of this Statement as necessary to enable users to understand how fair values were determined also were required by Statement 123. However, because this Statement gives greater emphasis to lattice models than Statement 123 did, the required disclosures of the significant assumptions used to estimate the fair value of share-based compensation awards are revised to specifically encompass assumptions used in lattice models that employ a range of assumptions. For example, an entity that uses a valuation method in which different expected volatilities are used during the contractual term of an option is required to disclose the range of volatilities used.