

# A Shareholder Perspective on the Valuation of Stock Options

## Report Author

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## Key Takeaways

- Full-term assumptions in the valuation of stock options appear to be appropriate given that many CEOs tend to exercise options close to their expiration dates.
  - Companies' grant-date fair value calculations for options expensing tend to be significantly lower than the realized gains.
  - Companies' expensed option values tend to reflect a set of assumptions based on the general employee population, which may not best reflect CEO behavior.
  - The significant difference between the grant-date fair value of stock options and the tax deductions that companies receive on the CEO's option gains highlight a discrepancy between options expensing rules and tax deductibility of actual option gains.
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## Introduction

When evaluating stock option plans or valuing stock options, ISS applies a standardized method based on a consistent set of assumptions that provides comparability across companies. While these assumptions are in within GAAP guidelines, they may differ from those used by companies for their expensing/disclosure valuations (since GAAP permits significant flexibility in individual company valuations).

A frequent difference is the term input into the Black-Scholes model that ISS (and many companies) uses to calculate the present value of an option on its grant date (when it has no intrinsic value if the exercise price is the same as the stock price on that date). ISS' standard input is the full term of the executive's option, which means option holders wait until close to the expiration date of options to exercise. The reason for ISS' approach is to make conservative estimates and to allow comparability among companies.

Issuers have often contested ISS' full-term option assumptions because ISS' methodology does not mirror their valuations, which are within the Financial Accounting Standards Board's (FASB) rules for the expensing of stock options for financial reporting purposes.

In general, ISS adheres to the following principles when analyzing executive compensation in our research reports:

1. Focus on potential shareholder value transfer perspective, rather than a financial reporting perspective.
2. Estimates should err on the conservative side. This approach is consistent with SEC disclosure requirements where companies are advised to disclose maximum potential payouts in the Grants of Plan-Based Awards table.
3. Valuations should consider the intrinsic and time value of money.

## Key Findings

In order to explore whether the ISS approach to expected life assumptions is reasonable, we examined a random sample of 50 companies and found the following:

1. CEOs tend to exercise options close to their expiration dates.
2. Companies' grant-date fair values of stock options (expensing value) tend to be significantly lower than the realized gains of exercised options.
3. Companies' expensed option value tends to reflect a set of assumptions for the broader employee population.
4. There can be a significant difference between the grant date fair value of stock options and the tax deductions that companies received on the CEO's realized gains, which highlight a discrepancy between the options expensing rule and corporate tax deductibility.

## Note on Methodology

This briefing paper examines two key questions:

1. In fiscal 2010, when did CEOs tend to exercise their vested stock options relative to the expiration dates?
2. Is there a difference between realized gains from stock options exercised in fiscal 2010 and the underlying expense value of the grant(s) for the CEO?

Based on 2011 proxy statements, fiscal 2010 data was used so the analysis would reflect the most recent information. Data for 50 randomly selected companies, consisting of 20 large-cap, 15 mid-cap, and 15 small-cap companies was collected. (See Appendix B for the list of issuers.) With respect to the options exercised in fiscal 2010, we assumed that the CEO exercised his/her vested options on Dec. 31, 2010. The difference between the options' expiration date and Dec. 31, 2010, is computed and then divided by 365 days. The derived value, expressed in number of years, represents the estimated proximity of the options' exercise date to

their expiration date. A number less than one means that the stock option grant was exercised within the same year as the expiration date.

The realized option gains figure is obtained from the Option Exercises and Stock Vested table from the proxy statement. The grant date fair value of options, otherwise known as the expensed value, is obtained from the footnotes to the 10-K. The majority of the option grants from this sample that exercised in 2010 were granted in 2000 or 2001, which was prior to mandatory options expensing. Nevertheless, companies do disclose the potential expense value in the footnotes to the 10-K. The footnotes did not provide details for each option grant to the CEO. Instead, companies disclosed the weighted average fair value of options for the fiscal year. We first tracked the year in which the exercised option was granted and identified the weighted average fair value of options in the footnotes to financial statements. If the company disclosed the grant date fair value of the stock options in the Option Grants table in the proxy statement, then such value would be captured in our analysis rather than using the information in the 10K. If stock options expired underwater (i.e., the exercise price of options exceed the current stock price), ISS would record the option gains as zero and then capture the option expense value. In determining if the outstanding stock options have expired underwater, ISS compared 2011 and 2010 proxy statements and noted if the oldest outstanding options were exercised or expired underwater.

### Expected vs. Actual Behavior

Companies are given certain latitude in determining the assumptions for stock option expensing. (See Appendix A for stock options expensing discussion.)

For example, when applying the Black-Scholes Pricing Model, companies may make adjustments to key assumptions since employee-based stock options cannot be hedged or sold compared to traded stock options.

Vesting requirements and employee behavior such as early exercise of options also cannot be modeled separately in the Black-Scholes Option Pricing Model. Therefore, companies may also

adjust expected term, expected volatility, and expected dividends.

The company's expected option term assumption is tailored to reflect employees' past behavior at the company.

However, unlike rank and file employees, executives may exhibit different behavior when it comes to exercising stock options. Executives are generally paid competitively and may often defer compensation to postpone payment of taxes.<sup>1</sup>

The actual term of most option tends to be significantly higher than the expected term assumption used by many companies. According to the 2010 Domestic Stock Plan Survey by the National Association of Stock Plan Professionals, 65 percent of the survey respondents used a 10 year actual term compared to 68 percent in 2007. See the chart below.

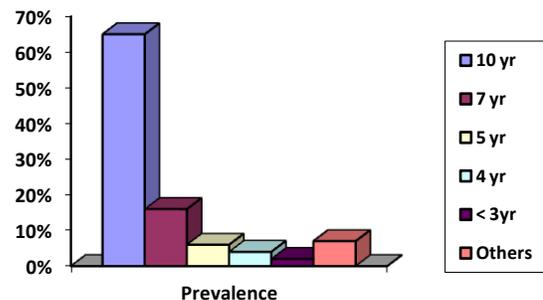
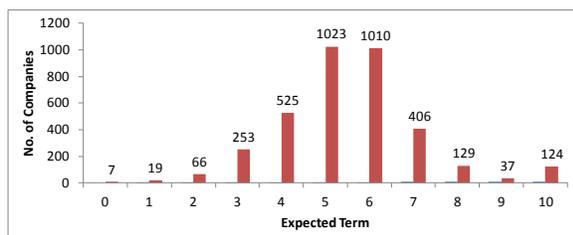


Figure 1: Most prevalent option terms in grants

A 10-year term is still the most prevalent, according to the survey data. However, according to Standard & Poor's Research Insight Database, the median expected term of options for all the companies in its database is only 5.23 years. The median expected term of options for the S&P 1500 is 5.27 years. In other words, about half of the actual option term that most companies set.

<sup>1</sup> As noted in Accounting Standards Codification Topic 718; see "Pattern of Stock Option Exercise in the U.S." by S. Huddart; see also "Employee stock option exercises: An empirical analysis," *Journal of Accounting and Economics*, 1996, pp. 5-43, by S. Huddart and M. Lang, who found that executives and other senior managers are significantly more patient in their exercise behavior than more junior employees.



**Figure 2: Most prevalent option "expected terms" in expensing**

As seen in the above chart, close to 60 percent of the companies in the Standard & Poor's database use an expected term of 5 or 6 years for stock options even though close to 70 percent of companies have 10-year term stock options. Investors should also note that an expected term as low as one or two years is allowed (by FASB) as long as the company's estimate of the expected term is not less than the vesting term.

It may be the case that, on average, employees exercise options long before they would expire. However, the exercise behavior pattern for CEOs tends to be significantly different from the rank-and-file employees due to his/her cash compensation level and size of equity grants.

Option pricing theory generally states that the most ideal time to exercise an option is at the end of the option's term. In "Consider your Options" by Kaye A. Thomas, the author states that in most cases, optionees are better off holding their stock options than exercising the option and holding the stock. Exercising stock options the moment they vest incurs ordinary income taxes. Further, if the shares are held, the individual would have to bear full consequences if the stock price falls. By exercising early, individuals are also giving up leverage and the time value of money.

Based on ISS' analysis of 50 randomly selected companies, most CEOs exercised their outstanding options as close as 0.65 years to their expiration dates in 2010, as noted in Table 1.

**Table 1: Options exercised in 2010 by sample company CEOs**

Median Years to Expiration Date
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	Median Years to Expiration Date
Small Cap	0.23 yrs
Mid Cap	0.58 yrs
Large Cap	1.09 yrs
<b>Total</b>	<b>0.65 yrs</b>

Notably, not all CEOs in the sample study exercised any vested and outstanding stock options in fiscal 2010; however, the findings indicate that the CEOs had the opportunity to exercise early. An average 80 percent of the CEOs' oldest outstanding stock options were in-the-money based on the company's fiscal 2010 year-end stock price. In other words, the CEOs held onto vested and in-the-money options that were not close to expiration.

While the sample here is small and covers only one year, the findings indicate that ISS' utilization of the full-option term assumption for valuation of CEO grants is reasonable.

### Gap with GAAP Valuation

The purpose of stock option expensing is to account for the financial cost attributed to stock options. Companies may choose certain assumptions when expensing stock options in order to minimize adverse impact on the company's reported earnings. Consequently, stock option expensing by companies may not reflect the potential realizable option gains.

Our analysis of the 50 companies found that at the small- and large-cap companies, the median CEO's realized option gains in fiscal 2010 significantly exceeded the value that had been expensed for the options exercised (see Table 2.). Interestingly, the mid-cap companies show that the realized gains were smaller than the expensed value. While the results may be inconclusive due to the time period and sample size, the findings do suggest that expensed values do not reliably reflect the potential realizable gains. In fact, the actual realized option

gains may be significantly larger than the expensed value.

It is also important to note that the data below do include underwater stock options that have expired. In such cases, realized gains for underwater options is zero but the grant date fair value numbers are taken from either the footnotes to the financial statements or the Option Grants table in the proxy statement, if available.

**Table 2: Grant date expense vs. realized gains of sample CEO options exercised in fiscal 2010**

	<b>Grant Date Fair Value/Expensed Value (Median)</b>	<b>Realized Gains (Median)</b>
<b>Small Cap</b>	\$531,000	\$2,400,000
<b>Mid Cap</b>	\$1,150,000	\$778,000
<b>Large Cap</b>	\$4,260,000	\$10,450,000

The objective of ISS' option valuation methodology for the executive officers is not for financial reporting purposes, but rather to reflect the potential value transfer to executives, as part of a pay-for-performance evaluation.

Investors, and boards, should be aware that there is a discrepancy between options expensed values and likely realized gains. This has been highlighted due to the tax deductions on exercised options claimed by corporations. Federal tax law allows companies to take a corresponding deduction on their tax returns equal to the tax liability incurred by the employee exercising an option (i.e., based on the net gain actually realized in the case of non-qualified options), which generally occurs years after the options were granted. In fact, Sen. Carl Levin, D-Michigan, and Sen. Sherrod Brown, D-Ohio, have introduced legislation to end what they consider to be a corporate tax break by prohibiting companies from deducting stock option expenses on their tax returns in amounts greater than the expenses shown on their financial statements. According to IRS data released by Sen. Levin, the total amount of excess tax deductions ranged from \$12 billion to \$61 billion a year.

Investors should recognize that stock options at many companies may become underwater and the cost of expensing may not be recovered. Nevertheless, it is important to note that the asymmetrical nature of stock options means that there is unlimited upside potential to stock option gains and a limited downside risk.

## Conclusion

The findings of our analysis indicate that ISS' full-term option assumptions for top executive option valuations are reasonable because CEOs tend to exercise their options close to their expiration dates. It is also important to note that the focus of ISS' compensation guidelines is from a shareholder's perspective in assessing executive pay, rather than from a company's financial reporting perspective. A company's expensed value does not represent the actual amount realized on exercised options due to the asymmetrical nature of stock options. Our analysis found that actual option realized gains can far exceed the hypothetical expensed value. Accordingly, ISS concludes that it is more reasonable to use full-term option assumptions for stock option valuation. This standardized approach also makes it easier for investors to compare pay practices among companies.

## Appendix A - Stock Options Expensing Discussion

Shareholders have now seen four years of stock options expensing from publicly-traded companies. Options expensing provides accounting transparency of executive compensation and allows shareholders to consider the accounting costs attributed to stock options.

The Financial Accounting Standards Board's (FASB) Accounting Standards Codification (ASC) Topic 718 (formerly FASB Statement 123R) does not dictate a preference for a particular valuation technique, but states that "the design of a lattice model more fully reflects the substantive characteristics of a particular employee share option."

According to the 2010 Stock Plan Design Survey conducted by National Association of Stock Plan Professionals and Deloitte Consulting LLP, 89 percent of the survey respondents utilize a Black-Scholes model and 8 percent utilize a Binomial model to determine the option fair value for ASC Topic 718.

As noted in Topic 718, the FASB staff recognizes that estimates of fair value of employee stock options, while derived from expected value calculations, cannot predict actual future events. The estimate of fair value represents a measure of the cost of the employee services to the company. The estimate of fair value should reflect the assumptions marketplace participants would use in determining how much to pay for an instrument on the date of the measure. As long as the share options were originally so measured, changes in an employee share option's value, no matter how significant, subsequent to its grant date do not call into question the reasonableness of the grant date fair value estimate.

With respect to volatility, the guidance is that entities should consider historical volatility over a period generally commensurate with the expected or contractual term of the share option. The staff believes methods that place extreme emphasis on the most recent periods may be inconsistent with this guidance. Topic 718 does not specify a method of estimating expected volatility; rather it provides a list of factors that should be considered

and requires that an entity's estimate of expected volatility be reasonable and supportable.

With respect to term, Topic 718 states that employee share options generally differ from transferable share options in that employees cannot sell (or hedge) their share options – they can only exercise them; because of this, employees generally exercise their options before the end of the options contractual term. Thus, the inability to sell or hedge an employee share option effectively reduces the option's value because exercise prior to the option's expiration terminates its remaining life and thus its remaining time value. Topic 718 requires that when valuing an employee share option under the Black-Scholes-Merton framework the fair value of employee share options be based on the share option's expected term rather than the contractual term.

## Appendix B – List of Companies Analyzed

### Large-Cap Companies

1. Allergan Inc.
2. Boeing Co.
3. CA Inc.
4. Caterpillar Inc.
5. Compuware Corp.
6. Devon Energy Corp.
7. Fluor Corp.
8. Freeport-McMoRan Copper & Gold
9. Lincoln National Corp.
10. McKesson
11. Nabors Industries Ltd.
12. PNC Financial Services Group Inc.
13. Polo Ralph Lauren
14. Precision Cast Parts
15. Red Hat Inc.
16. Roper Industries Inc.
17. Sherwin-Williams Co.
18. United Technologies
19. Williams Cos Inc.
20. Xilinx Inc.

### Mid-Cap Companies

21. Astoria Financial Corp.
22. Avnet Inc.
23. Ciena Corp.
24. Comstock Resources Inc.
25. Deluxe Corp.
26. Global Payments Inc.
27. Ingram Micro Inc.
28. Korn/Ferry International
29. Mentor Graphics Corp.
30. Patterson-UTI Energy Inc.
31. Plantronics Inc.
32. Qlogic Corp.
33. Scientific Games Corp.
34. Silicon Laboratories Inc.
35. Vertex Pharmaceuticals Inc.

### Small-Cap Companies

36. Abaxis Inc.
37. Agilysys Inc.
38. Cbeyond Inc.
39. Century Aluminum Co.
40. Consolidated Graphics Inc.
41. Digi International Inc.
42. FEI Co.
43. Gulf Island Fabrication Inc.
44. Hornbeck Offshore Services Inc.
45. Park Electrochemical Corp.
46. Pinnacle Finl. Partners Inc.
47. Rubicon Technology Inc.
48. Smith (A O) Corp.
49. Supertex Inc.
50. WD-40 Co.

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