

The Accounting and Economics of Executive Stock Options

Part II: Fair Value vs. Compensation Value

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This is the second of three articles dedicated to the economics of Executive Stock Options (ESOs) and their role in executive compensation packages. In the first article we challenged the perception that ESOs offer the potential for very large rewards with no downside risk. This misperception appears, in some cases, to be an emotional reaction to corporate abuses rather than a rational response to accurate analysis. We applied formal risk assessment methodologies to demonstrate that ESOs' upside potential comes at the cost of significant variability of the final payout. And unlike alternatives such as cash or Restricted Stock Units (RSUs), ESOs may not pay out at all if the stock underperforms.

This article addresses another frequent practice that contributes to common misperceptions of ESOs: interpreting the Fair Value reported for accounting purposes as the compensation value executives derive from ESOs. Fair Value is not a good representation of ESOs' compensation value because it always overstates the value actually delivered to executives. It follows, then, that Fair Value should not be used to estimate either the value of an executive's compensation package or the potential that he or she will engage in risk-taking behavior to maximize personal payouts from ESOs.

ACCOUNTING VS. ECONOMICS: FUNDAMENTAL DISTINCTIONS

The fundamental distinctions between accounting principles and economic materiality can be better understood if we first define Fair Value and two other concepts: the option's Intrinsic Value and Optionality Value.

A company reports an ESO grant as a compensation expense equal to the ESO's Fair Value, i.e. the value calculated using the Black-Scholes (B-S) formula or equivalent lattice model, as prescribed by ASC Topic 718 (formerly FAS123R). Fair Value is comprised of the Intrinsic Value and the Optionality Value.

The Intrinsic Value is the value the option's owner would realize upon exercising the option. It is the difference between the

Stock Price and the option's Exercise Price, when the Stock Price is greater than the Exercise Price. The Intrinsic Value is zero when the Stock Price is lower than the Exercise Price, i.e. when the option is underwater. For example, if the option's Exercise Price is \$100 and the current Stock Price is \$150, then the Intrinsic Value is \$50. If the Stock Price is \$80, the Intrinsic Value is \$0.

The Optionality Value can be thought of as an insurance premium that protects the option's owner from the Stock Price dropping below the Exercise Price. More simply, the Optionality Value is the excess of the Black-Scholes value over the Intrinsic Value¹.

Fair Value is routinely used to represent an ESO's economic value in executive compensation packages. In fact, many analyses of ESOs' potential to induce excessive risk-taking for personal profit maximization rely heavily on the B-S Fair Value formula. However, the problem with equating Fair Value and true economic value is obvious: In the absence of ESO market exchanges, executives are not able to monetize the Fair Value of their ESOs in the same way that investors can sell a stock option on the public market. Technically, the executive does not have full ownership of the ESO or its Fair Value. He or she only owns the rights to its Intrinsic Value, which is always less than the Fair Value, according to the B-S methodology.

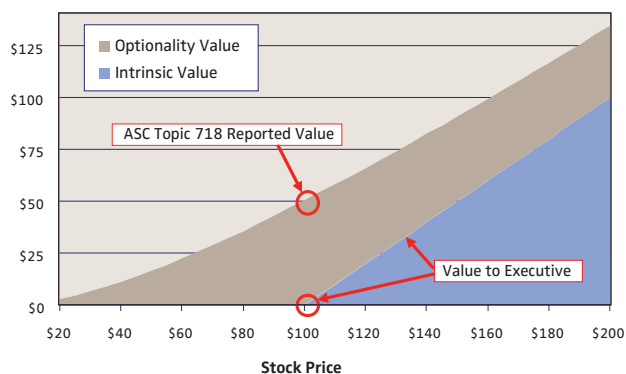
¹ The analysis is more complex than presented, in that the Optionality Value from the Black-Scholes model also contains a component known as the Time Value of the Exercise Price besides the pure Insurance Value. However, the Time Value of the Exercise Price is relatively small and can be ignored for simplicity. The substance of the argument does not change.

For example, on the day ESOs are granted, they have a Fair Value which is reported for expensing and other purposes, but they have no Intrinsic Value. Further, if the ESO is provided in lieu of some other form of compensation — cash or RSUs — there is an Economic Opportunity Cost associated with an executive’s potential for missed earnings (as discussed in Part I of this series). Because of these issues, Fair Value always overstates the economic value of an executive’s award. Consequently, changes in Fair Value, due to changes in the Stock Price or in the stock’s Volatility, should not be used to represent changes in the economic value of an executive’s compensation.

To illustrate these concepts, let’s consider an ESO with an Exercise Price of \$100 and a reported Fair Value of \$50 on grant date. Let’s also assume that the ESO vests immediately. When the grant is made, the company records an immediate \$50 compensation expense, according to ASC Topic 718. However, the value to the executive is the ESO’s Intrinsic Value — the difference between the Exercise Price and the current Stock Price — which is zero. If the executive had received a RSU worth \$50 (again immediately vested), he or she could sell it immediately for \$50.

The following diagram shows how the Intrinsic Value and the Optionality Value change as a function of the current Stock Price for an ESO with five years to expiration, an Exercise Price of \$100, and the following inputs to the Black-Scholes model: Volatility of 56 percent and Interest Rate of two percent per year. For simplicity, the stock pays no dividends.

Option Value: 5-Years to Expiration



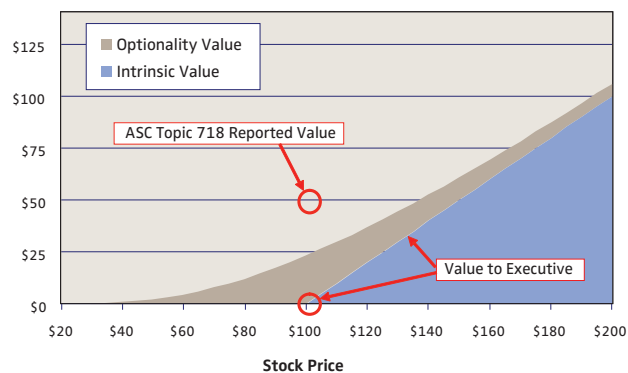
When the Stock Price is below the Exercise Price of \$100, the ESO has no Intrinsic Value. When the Stock Price is above the

Exercise Price, the ESO has a tangible Intrinsic Value (i.e. the executive can realize the Intrinsic Value by exercising the option if it is vested). Notice that the Optionality Value can be positive and significant even if the option is underwater. For an exchange-traded option, this premium is valuable and can be monetized. An investor who buys an exchange-traded option owns both the Intrinsic Value and the Optionality Value. However, executives who have ESOs can only monetize the Intrinsic Value.

Accounting and reporting rules under ASC Topic 718 mandate that the Fair Value of ESOs be reported as compensation. We argue that the Optionality Value portion of Fair Value represents a purely sunk cost to the company with no corresponding material compensation benefit that the executive can monetize. Furthermore, ESOs gradually lose their Optionality Value as they approach their Maturity or Time to Expiration.

The following diagram shows the residual Optionality Value when the ESO in our example has only one year left until expiration. The diagram shows the values for a range of possible Stock Prices. The specific value would be determined by where the stock trades one year before expiration.

Option Value: 1-Year to Expiration



As shown above, an ESO would have some residual Optionality Value even if it was underwater and worthless to an executive.

AVOIDING WRONG CONCLUSIONS

Our analysis exposes a potential issue with ASC Topic 718’s requirement that ESOs be expensed using the Fair Value approach built on a Black-Scholes or related methodology. We have shown that Fair Value overstates the material value

delivered to executives in the form of ESOs, creating a potential discrepancy between the company's perspective (the value mandated for accounting and reporting, i.e. the Fair Value) and the executives' perspective (the economic materiality of the value actually received, i.e. the Intrinsic Value). The latter, not Fair Value, is the appropriate measure to be used for compensation risk assessment and other purposes such as determining the size of an ESO award.

Using Fair Value as a proxy for the value of ESOs to executives may lead to potentially erroneous conclusions such as:

- *ESOs incent executives to take actions that increase the Volatility of the company stock in order to increase the value of their options.* This argument misses the point that an increase in Volatility only affects the Optionality Value, not the Intrinsic Value, which is the only value executives can monetize. Note that increased stock Volatility would increase both the opportunities for positive payouts as well as for missed payouts, so there is little rational argument for executives to pursue increased stock Volatility.
- *ESOs' Fair Value is an accurate representation of the expected value of the compensation awarded to executives.* This is a common assumption, for example, in determining the size of ESO awards. This conclusion is incorrect not only because Fair Value is an inaccurate representation of an executive's compensation value, but also because Fair Value is calculated using theoretical assumptions required by the B-S valuation methodology, and not more realistic expectations of future realized payouts based on the true history of the Stock Price.

Unfortunately, the Fair Value methodology is widespread in discussions about the incentivizing and risk-inducing effects of equity-based compensation. More troubling, it is used in policy-making procedures that influence compensation design decisions (for example, the RiskMetrics/ISS Risk Assessment process and Run Rate calculations for ESOs). Although the Fair Value methodology is appropriate for exchange-traded options, its application to ESOs may fail to represent the true economics

of the compensation transaction, particularly if it is the sole method for determining the size and value of ESO awards or for comparing ESO awards to other equity awards.

In summary, any assessment of an executive's compensation package that includes ESOs should be based on the economics of the ESO's Intrinsic Value. The potential challenge of such an approach is that it will require more subjective and discretionary assumptions about the expected future performance of the company's stock in order to estimate the expected future value of ESO-based compensation. By contrast, we have mentioned that the Fair Value methodology uses assumptions dictated by the B-S theory (i.e. the so-called Risk-Neutral Distribution assumption) that require estimating the company stock's Volatility but not its expected future performance. The B-S Fair Value approach provides a rigorous formal framework for the analysis of executives' ESOs compensation, which is, however, inconsistent with the true economics of ESO awards. The advantage of focusing on Intrinsic Value instead, while less formal and requiring more discretionary judgment, is that it will induce the re-thinking of commonly adopted practices and ultimately lead to more robust and effective processes for assessing the risks and values of ESO awards.

In the third and final article in this series, we'll discuss how to incorporate these results in a consistent framework for the analysis of ESOs' contributions to an executive's compensation value and their incentivizing effects.

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