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Options Modifications or Cancellations: **Which is more appropriate?**

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In many situations, companies face a decision related to how changing market conditions or how personal circumstances of employees may impact the employee stock options plans in the company. The accounting treatment of these modifications is sometimes a significant challenge, as it involves the complex accounting topic of “variable accounting of stock-based compensation”. This paper addresses the different types of employee stock option modifications, and the accounting treatment of each. In addition, the paper compares the modification versus re-issuance of the options from a financial impact perspective.

What can be modified in Employee Stock Option contracts?

Practically, anything in the employee stock option contract can be modified. Each type of modification will have a different accounting treatment though. Following are the different areas of modification of employee stock option contracts that would have an impact on the company financials:

- Modifying the option strike price
- Extending the option expiry date
- Accelerating the option vesting schedule
- Decelerating the option vesting schedule

Modifying the Option Strike Price

Companies may change the strike price of contracts¹ when the price of the underlying security is heavily depressed, undermining the value of options as a retention mechanism for employees.

Please note that increasing the strike price of the contract should have no impact whatsoever on the expensing calculations of the options. The only impact would be on the amount of cash received, and the corresponding credit to the share capital upon exercising the options.

Following are the key principles associated with the impact on the stock-based compensation expenses resulting from changing the strike price of an options contract:

¹ The modification of the strike price is usually downwards, although the contract strike price may also be modified to a higher price. Raising the strike price may happen, for example, as a result of previously dropping the strike price to an abnormally low price, and they deciding to increase it later.

- (1) As the strike price drops, the expense of the option contract is increased to accommodate for the additional benefit that the employee is receiving.
- (2) The increase in the expense is broken down into two components:
 - a. A bulk adjustment to take into consideration the expense that had already been incurred at the original price.
 - b. An on-going future increase in the unrecognized expense.
- (3) The increase is based on an increment that is calculated based on the fair market value difference as calculated according to the old and new strike prices.²
- (4) A strike price increase (which rarely happens) would have no impact on the expense.

The best way to explain the accounting associated with the modification of strike prices is through an example:

Assume that we have a contract with the following parameters and modifications:

- The issue date is 2006/01/01, and the contractual life of the option contract is five years.
- The option contract is for 18,000 options.
- The strike price as of the issue date was \$10
- The Black-Scholes³ value at the issue date was \$7
- The vesting of the contract is over three tranches starting one year after the issue date with 6,000 options for each tranche.
- On 2008/08/08, the strike price was modified from \$10 to \$6.
- On the modification date, the BS value was calculated based on the old and new strike prices, and following are the results of this valuation:
 - The BS value based on the original strike price (\$10) was \$1
 - The BS value based on the new strike price (\$6) was \$3

Based on the above assumptions, the following debits and credits will be created for us:

Original Transactions:

Until 2008/08/01, on a monthly basis, 500 (18,000 options / 36 months⁴) options will be amortized at \$7 per option resulting in the following monthly transactions:

² The calculation of this difference will be discussed later in the paper.

³ The fair market valuation can be any valuation (e.g. the Lattice/Binomial model), not necessarily the Black-Scholes valuation. For simplicity, we will assume that we are using the Black-Scholes model for our valuation.

<i>Debit</i>	<i>Stock-based Compensation</i>	<i>\$3,500</i>
<i>Credit</i>	<i>Contributed Surplus</i>	<i>\$3,500</i>

Bulk Adjustment at the Modification Date:

On the modification date (2008/08/08) a catch-up adjustment needs to take place. The catch-up adjustment will take the difference between the two BS values calculated at the adjustment date (\$3 and \$1), multiplied by the total number of options that were amortized to that date. As of 2008/01/01, there were 32 months of amortization representing 16,000 amortized options. Following are the transactions:

<i>Debit</i>	<i>Stock-based Compensation</i>	<i>\$32,000</i>
<i>Credit</i>	<i>Contributed Surplus</i>	<i>\$32,000</i>

After the Modification⁵:

For the remaining amortization of options (four months of amortization), the expense will be based on a BS value that is the original value (\$7) plus the difference between the two BS values calculated at the adjustment date (\$3 and \$1). Therefore, each month would have the following transactions:

<i>Debit</i>	<i>Stock-based Compensation</i>	<i>\$4,500</i>
<i>Credit</i>	<i>Contributed Surplus</i>	<i>\$4,500</i>

The following table summarizes the details of the expenses incurred in the case of the modification:

Transaction Date	Transaction Type	Number of Options	Transaction Price	Expense
01/01/2007	Vesting the Options	6,000	\$10.00	
01/01/2006	Amortization of Vested Options	500	\$7.00	\$3,500.00
01/02/2006	Amortization of Vested Options	500	\$7.00	\$3,500.00
01/03/2006	Amortization of Vested Options	500	\$7.00	\$3,500.00
01/04/2006	Amortization of Vested Options	500	\$7.00	\$3,500.00
01/05/2006	Amortization of Vested Options	500	\$7.00	\$3,500.00
01/06/2006	Amortization of Vested Options	500	\$7.00	\$3,500.00
01/07/2006	Amortization of Vested Options	500	\$7.00	\$3,500.00

⁴ We are assuming here that the options are amortized on a straight-line basis over the vesting life of the contract. The other alternative is the accelerated amortization method, where every tranche is amortized from the issue date to its vesting date.

⁵ If the option has been fully vested as of the date of the strike price modification, only the catch-up adjustment will be needed, and no further expenses would be needed.

Transaction Date	Transaction Type	Number of Options	Transaction Price	Expense
01/08/2006	Amortization of Vested Options	500	\$7.00	\$3,500.00
01/09/2006	Amortization of Vested Options	500	\$7.00	\$3,500.00
01/10/2006	Amortization of Vested Options	500	\$7.00	\$3,500.00
01/11/2006	Amortization of Vested Options	500	\$7.00	\$3,500.00
01/12/2006	Amortization of Vested Options	500	\$7.00	\$3,500.00
01/01/2008	Vesting the Options	6,000	\$10.00	
01/01/2007	Amortization of Vested Options	500	\$7.00	\$3,500.00
01/02/2007	Amortization of Vested Options	500	\$7.00	\$3,500.00
01/03/2007	Amortization of Vested Options	500	\$7.00	\$3,500.00
01/04/2007	Amortization of Vested Options	500	\$7.00	\$3,500.00
01/05/2007	Amortization of Vested Options	500	\$7.00	\$3,500.00
01/06/2007	Amortization of Vested Options	500	\$7.00	\$3,500.00
01/07/2007	Amortization of Vested Options	500	\$7.00	\$3,500.00
01/08/2007	Amortization of Vested Options	500	\$7.00	\$3,500.00
01/09/2007	Amortization of Vested Options	500	\$7.00	\$3,500.00
01/10/2007	Amortization of Vested Options	500	\$7.00	\$3,500.00
01/11/2007	Amortization of Vested Options	500	\$7.00	\$3,500.00
01/12/2007	Amortization of Vested Options	500	\$7.00	\$3,500.00
01/01/2009	Vesting the Options	6,000	\$6.00	
01/01/2008	Amortization of Vested Options	500	\$7.00	\$3,500.00
01/02/2008	Amortization of Vested Options	500	\$7.00	\$3,500.00
01/03/2008	Amortization of Vested Options	500	\$7.00	\$3,500.00
01/04/2008	Amortization of Vested Options	500	\$7.00	\$3,500.00
01/05/2008	Amortization of Vested Options	500	\$7.00	\$3,500.00
01/06/2008	Amortization of Vested Options	500	\$7.00	\$3,500.00
01/07/2008	Amortization of Vested Options	500	\$7.00	\$3,500.00
01/08/2008	Amortization of Vested Options	500	\$7.00	\$3,500.00
08/08/2008	Catch-up Modification Adjustment	16,000	\$2.00	\$32,000.00
01/09/2008	Amortization of Vested Options	500	\$9.00	\$4,500.00
01/10/2008	Amortization of Vested Options	500	\$9.00	\$4,500.00
01/11/2008	Amortization of Vested Options	500	\$9.00	\$4,500.00
01/12/2008	Amortization of Vested Options	500	\$9.00	\$4,500.00

Should we cancel the option and re-issue a new option instead?

The decision to cancel options and re-issue them or to modify the strike price (or expiry date) of the option contract is usually a critical one; the decision depends on the financial objectives of the company (whether the company desires to increase or reduce its stock-based compensation

expense), and requires a good understanding of the financial ramifications of each decision. The financial impact of canceling and re-issuing the options depends on the number of options that have already been vested as of the date of the modification.

If the options have been fully vested, then we would need to take the following steps:

- (1) Cancel the original option. There would be no financial impact as a result of this cancellation in case of a fully vested option contract.
- (2) Issue new options with the new BS value, and immediate vesting. The BS value of this contract will be \$3. Therefore, the following transactions will be booked on the modification date.

	<i>Debit</i>		
		<i>Stock-based Compensation</i>	\$54,000⁶
	<i>Credit</i>	<i>Contributed Surplus</i>	\$54,000

If the contracts are not fully vested (assume the same as the dates specified earlier), then we will be taking the following steps:

- (1) Cancel the original option. This cancellation will result in reversing the expenses associated with the unvested options. This will result in the following reversal of the expenses associated with the unvested options (the expenses associated with the third tranche, 8 months at \$3,500 per month). Accordingly, the following transactions will be booked on the cancellation/modification date:

	<i>Debit</i>		
		<i>Contributed Surplus</i>	\$28,000⁷
	<i>Credit</i>	<i>Stock-based Compensation</i>	\$28,000

- (2) Issue new options again with the new BS value, and immediate vesting. The BS value of this contract will be \$3. Therefore, the following transactions will be booked on the modification date.

	<i>Debit</i>		
		<i>Stock-based Compensation</i>	\$54,000⁸
	<i>Credit</i>	<i>Contributed Surplus</i>	\$54,000

Based on the above calculations, let us look at the comparison between the following different scenarios:

- (1) Options have not yet been expensed, and the modification is happening before the start of expensing the options

⁶ 18,000 options at \$3 as the valuation price per option = \$54,000.

⁷ 4,000 options at \$7 as the valuation price per option = \$28,000.

⁸ 18,000 options at \$3 as the valuation price per option = \$54,000.

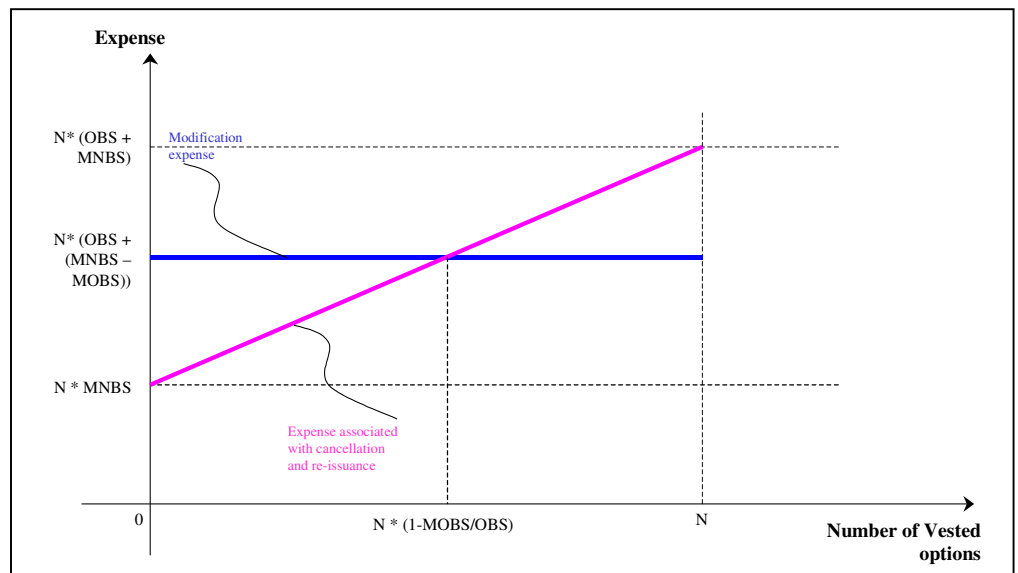
- (2) Options have been partially vested and no expenses have been incurred associated with unvested options
- (3) Options have been partially vested, and expenses have been incurred associated with unvested options
- (4) Options have been fully vested and expensed.

The following table shows the impact on the overall stock-based compensation expense in each of these situations. Following is the legend used in this calculation:

- Original BS Value: **OBS**
- BS Value based on the old strike price at the modification date: **MOBS**
- BS Value based on the new strike price at the modification date: **MNBS**
- Overall number of options: **N**
- Options Vested: **VN**
- Options Amortized and not yet Vested: **ANVN**

Scenario	Cancellation Expense	Modification Expense
Options have not yet been expensed, and the modification is happening before the start of expensing the options	$MNBS * N$	$(OBS + (MNBS - MOBS)) * N$
Options have been partially vested and no expenses have been incurred associated with unvested options	$(OBS * VN) + (MNBS * N)$	$(OBS + (MNBS - MOBS)) * VN + (OBS + (MNBS - MOBS)) * (N - VN) = (OBS + (MNBS - MOBS)) * N$
Options have been partially vested, and expenses have been incurred associated with unvested options	$(OBS * VN) + (MNBS * N)$	$(OBS + (MNBS - MOBS)) * (VN + ANVN) + (OBS + (MNBS - MOBS)) * (N - VN - ANVN) = (OBS + (MNBS - MOBS)) * N$
Options have been fully vested and expensed	$(OBS + MNBS) * N$	$(OBS + (MNBS - MOBS)) * N$

Based on the above table, we find that the cancellation may or may not result in either increasing or decreasing the expenses. The graph aside shows the comparison between the expenses for both cancellation and the modification methods for changing the option strike prices. The point at which the cancellation and the modification would yield



exactly the same expense is when the number of vested options is equal to:

$$(1 - \text{MOBS/OBS}) * N$$

If the number of options vested is less than the number resulting from this formula, then the cancellation and re-issuance of options will yield a lower expense (the pink line is below the blue line in the graph shown above). On the other hand, if the number of options vested is higher than the number resulting from the formula shown above, then the modification of the strike price would yield a lower expense (the blue line is below the pink line). Assuming that the company does not have a provision in its option plan that dictates how to deal with strike price changes, then the company can make its decision based on its own objectives.

Modifying the Option Expiry Date

The exact same logic shown in the strike price changes would apply to changing the expiry date. The only difference is that the new BS values that are calculated at the modification date based on the old and new expiry dates. Some companies even combine changing the strike price with changing the expiry date of options, and the logic in that situation, as well, will be identical to the one explained in the strike price modification.

Accelerating the Options Vesting Schedule

The acceleration of option vesting schedule happens in many situations having to do with mergers and acquisitions or reaching the retirement date / termination of employees, where the company accelerates the vesting of options as of a particular date. To accommodate these scenarios, the vesting of options that have not yet vested is accelerated to the acceleration date, as well as the future expenses being accumulated at the acceleration date. Again, an example would help in better understanding the accounting impact of the options acceleration:

Assume that the same contract that we have discussed in the strike price modification, but instead of modifying the contract on 2008/08/08, we will be accelerating the options as of that date. At that point, 6,000 options will be vested as of 2008/08/08, and the expenses of four months that have not yet been recorded will be recorded on the acceleration date. Following are the transactions that are recorded on the acceleration date:

<i>Debit</i>	<i>Credit</i>	<i>Stock-based Compensation</i>	<i>\$14,000⁹</i>
		<i>Contributed Surplus</i>	<i>\$14,000</i>

Although canceling the option and issuing a new one is possible, this is not normally done in the case of option acceleration because of the simplicity of the accounting transactions.

Decelerating the Options Vesting Schedule

The deceleration of an options vesting schedule is another common modification that happens in the case of a leave of absence or maternity leave. In such a situation, the remaining expenses associated with the unvested options are spread from the deceleration date until the new vesting date. The following example will help us better understand:

⁹ 4 months of expensing * \$3,500 per month = \$14,000.

Assume that the same contract that we have discussed in the strike price modification, but instead of modifying the contract on 2008/08/08, we will be decelerating the options as of that date for an additional six months until 2009/06/01. This means that the unvested expenses (4 months * \$3,500/month = \$14,000) will need to be spread out over 10 months resulting in an expense of \$1,400 per month. Following are the transactions that will be incurred on a monthly basis for the remaining 10 months:

<i>Debit</i>	<i>Credit</i>	<i>Stock-based Compensation Contributed Surplus</i>	<i>\$1,400</i>	<i>\$1,400</i>
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Again, although canceling the option and issuing a new one is possible, this is not normally done in the case of option deceleration because of the simplicity of the accounting transactions. The following table shows the details of the expenses for the decelerated contract:

Transaction Date	Transaction Type	Number of Options	Transaction Price	Expense	Vesting Date
01/01/2007	Vesting the Options	6,000	\$10.00		
01/01/2006	Amortization of Vested Options	500	\$7.00	\$3,500.00	01/01/2007
01/02/2006	Amortization of Vested Options	500	\$7.00	\$3,500.00	01/01/2007
01/03/2006	Amortization of Vested Options	500	\$7.00	\$3,500.00	01/01/2007
01/04/2006	Amortization of Vested Options	500	\$7.00	\$3,500.00	01/01/2007
01/05/2006	Amortization of Vested Options	500	\$7.00	\$3,500.00	01/01/2007
01/06/2006	Amortization of Vested Options	500	\$7.00	\$3,500.00	01/01/2007
01/07/2006	Amortization of Vested Options	500	\$7.00	\$3,500.00	01/01/2007
01/08/2006	Amortization of Vested Options	500	\$7.00	\$3,500.00	01/01/2007
01/09/2006	Amortization of Vested Options	500	\$7.00	\$3,500.00	01/01/2007
01/10/2006	Amortization of Vested Options	500	\$7.00	\$3,500.00	01/01/2007
01/11/2006	Amortization of Vested Options	500	\$7.00	\$3,500.00	01/01/2007
01/12/2006	Amortization of Vested Options	500	\$7.00	\$3,500.00	01/01/2007
01/01/2008	Vesting the Options	6,000	\$10.00		
01/01/2007	Amortization of Vested Options	500	\$7.00	\$3,500.00	01/01/2008
01/02/2007	Amortization of Vested Options	500	\$7.00	\$3,500.00	01/01/2008
01/03/2007	Amortization of Vested Options	500	\$7.00	\$3,500.00	01/01/2008
01/04/2007	Amortization of Vested Options	500	\$7.00	\$3,500.00	01/01/2008
01/05/2007	Amortization of Vested Options	500	\$7.00	\$3,500.00	01/01/2008
01/06/2007	Amortization of Vested Options	500	\$7.00	\$3,500.00	01/01/2008
01/07/2007	Amortization of Vested Options	500	\$7.00	\$3,500.00	01/01/2008
01/08/2007	Amortization of Vested Options	500	\$7.00	\$3,500.00	01/01/2008
01/09/2007	Amortization of Vested Options	500	\$7.00	\$3,500.00	01/01/2008
01/10/2007	Amortization of Vested Options	500	\$7.00	\$3,500.00	01/01/2008
01/11/2007	Amortization of Vested Options	500	\$7.00	\$3,500.00	01/01/2008
01/12/2007	Amortization of Vested Options	500	\$7.00	\$3,500.00	01/01/2008
01/06/2009	Vesting the Options	6,000	\$10.00		
01/01/2008	Amortization of Vested Options	500	\$7.00	\$3,500.00	01/06/2009
01/02/2008	Amortization of Vested Options	500	\$7.00	\$3,500.00	01/06/2009

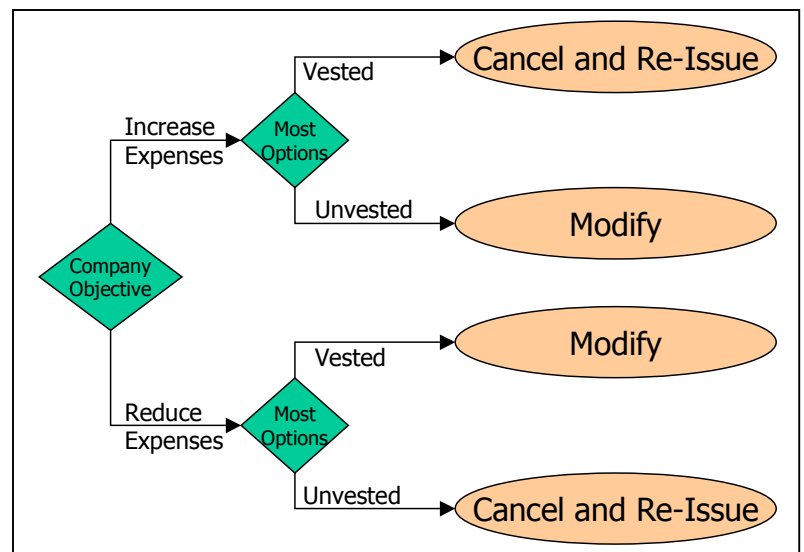
Transaction Date	Transaction Type	Number of Options	Transaction Price	Expense	Vesting Date
01/03/2008	Amortization of Vested Options	500	\$7.00	\$3,500.00	01/06/2009
01/04/2008	Amortization of Vested Options	500	\$7.00	\$3,500.00	01/06/2009
01/05/2008	Amortization of Vested Options	500	\$7.00	\$3,500.00	01/06/2009
01/06/2008	Amortization of Vested Options	500	\$7.00	\$3,500.00	01/06/2009
01/07/2008	Amortization of Vested Options	500	\$7.00	\$3,500.00	01/06/2009
01/08/2008	Amortization of Vested Options	500	\$7.00	\$3,500.00	01/06/2009
08/08/2008	Amortization of Vested Options	200	\$7.00	\$1,400.00	01/06/2009
08/09/2008	Amortization of Vested Options	200	\$7.00	\$1,400.00	01/06/2009
08/10/2008	Amortization of Vested Options	200	\$7.00	\$1,400.00	01/06/2009
08/11/2008	Amortization of Vested Options	200	\$7.00	\$1,400.00	01/06/2009
08/12/2008	Amortization of Vested Options	200	\$7.00	\$1,400.00	01/06/2009
08/01/2009	Amortization of Vested Options	200	\$7.00	\$1,400.00	01/06/2009
08/02/2009	Amortization of Vested Options	200	\$7.00	\$1,400.00	01/06/2009
08/03/2009	Amortization of Vested Options	200	\$7.00	\$1,400.00	01/06/2009
08/04/2009	Amortization of Vested Options	200	\$7.00	\$1,400.00	01/06/2009
08/05/2009	Amortization of Vested Options	200	\$7.00	\$1,400.00	01/06/2009

Conclusion

As shown in this article, the decision to either cancel the options or modify its parameters is dependent on the company objectives. In most situations, the modification will yield a lower expense compared to the cancellation of options and re-issuing them (in most situations, options are mostly vested by the time the change is needed). Despite that, many companies choose to cancel the expenses instead of modifying them for two purposes:

- (1) Reducing their corporate taxes (in some countries, stock-based compensation can be deducted from revenue for taxation purposes, despite the fact that it is a non-cash expense).
- (2) Eliminating the complexities of variable accounting associated with the modification of options.

The decision tree shows which approach needs to be taken:



Fortunately, OPTRACK (<http://www.optrack.com>) removes all the headaches associated with the accounting for employee stock options, and makes all the accounting for option modifications as simple as clicking a button.