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From: john olagues [mailto:truthinoptions@hotmail.com]
Sent: Monday, January 06, 2003 1:41 PM
To: pgdurban@fasb.org
Subject: Employee stock options Expensing etc

Robert H. Herz
Chairman FASB
c/o Pat Durban
401 Merritt 7
P.O. Box 5116 Norwalk, Conn. 06856-5116

Dear Mr. Herz

I would like to send the attached articles as my comments on the discussion of whether to expense employee stock options.

The conclusions I have reached are:

1. Employee stock options should be expensed at exercise not at grant or at vesting.
2. Even though the theoretical pricing models contain errors when calculating values of listed options, with the proper adjustments to certain assumptions one can arrive at reasonable accurate theoretical values for employee stock options.
3. Using theoretical values of employee stock options will, however, create a mountain of confusion with no corresponding accuracy in earnings reporting.

Sincerely:

John Olagues www.truthinoptions.com

P.S. I would be happy to answer any questions you may have on these issues.
Please call 1-866-222-0524

HOW TO CALCULATE THE VALUE OF YOUR EMPLOYEE STOCK OPTIONS

Today, many employees are faced with the task of valuing employee stock options, a) prior to accepting employment, when incentive packages are offered, b) during employment when bonuses may be offered, c) when they need to evaluate these options in a divorce or for estate planning purposes, and d) when they may want to value their options for investment management purposes.

Employers also need to have an accurate calculation of the options values since they want to know the value of what they are offering the employees. In addition, employers are now more than ever expensing the fair value of options for earnings purposes and need an accurate value to determine the impact on earnings. They also need accurate values to comply with FASB rules even if they do not expense the fair value but merely mention the values in footnotes.

The question then becomes “What methods should employees and employers use to accurately evaluate these employee options”.

One way is to use the Black Scholes or other theoretical valuation models. These are mathematical models, which give theoretical prices for a particular listed exchange traded option at any particular time. These models incorporate such variables as the stock price, the exercise price, the expiration date of the option, the expected volatility, the dividends, and the interest rate and produce theoretical values for listed stock options.

The Black Scholes model was created in 1973 by Myron Scholes and Fischer Black. It was first used in the real world on the CBOE and the Pacific Stock Exchange in 1975 and 1976 by market makers trading stock options on those exchanges. Your writer is one of those market makers.

But in some small circles of traders it is well known that the Black Scholes and other models are faulty in the valuation of listed long term options as well as listed options on highly volatile stocks. Some models also seem to have problems with stock having high dividend payments.

If we do decide to use the Black Scholes model or any model, we must then approach the valuations with the understanding that these models are just useful tools and are not precise instruments. Traders, who understand the models' inaccuracies, actually trade the options at prices that are different from the theoretical values especially on long term, highly volatile stock.

Can these models be used to accurately value the employee stock options? If so what adjustments have to be made in doing so?

If the employee was certain to remain with his employer till expiration of the options and was certain not to prematurely exercise his options, there would be no need to make any adjustments when valuing employee stock options as opposed to valuing listed stock options.

Since that is not the case, because employees do regularly terminate employment prior to expiration with the resulting loss of options value and do prematurely exercise their employee stock options, there must be some adjustments to certain of the assumptions made in the pricing models.

The adjustments can be reasonably handled by merely reducing the time to expiration from the full time to expiration to the expected time to expiration of the employee stock options.

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We will now illustrate the Valuation Method for employee stock options by using an example below:

1. Assume an employee is granted options to purchase 10,000 shares of stock in ABC company as part of a compensation package that expire ten years after the grant day.
2. Assume that the stock closes at \$50 on grant day and the options are exercisable at \$50. Usually the exercise price equals the price at grant.
3. Assume the one year annual historical volatility (defined as the standard deviation of returns) is .50 but the "implied volatility" on the three year listed LEAP calls is .40. LEAPs are merely long term standard options.

4. Assume the stock pays no dividends.
5. Assume the risk free interest rate is 1.2% for three month U.S. governments and 4% for 10 year governments.
6. Assume that the employee's options contract has standard provisions relating to vesting, penalties upon early termination and the provision that the options are not transferable.
7. Assume that there are no restrictions on the employee hedging his stock options by shorting stock or using listed options or stock futures.

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To calculate the employee stock options value, can we find an appropriate options calculator at www.intrepid.com or www.numa.com or www.hoadley.net and input the appropriate adjusted assumptions.

Those appropriate adjusted assumptions follow:

- A. Stock price \$50 (no adjustment necessary).
- B. Options exercise price \$50 (no adjustment necessary)
- C. Volatility. Historical volatility equals .50 but the adjusted volatility equals .37. We use the implied volatility of the longest LEAP (.40) and reduce that by 5 % to 7 % to get the proper assumed volatility for the just granted employee options. If the options subject to valuation have no listed options or no listed LEAPs, one can find a similar stock (in terms of price and volatility) that does and use that "implied volatility".
- D. Time to expiration is reduced by 37% to incorporate the expectations of early termination and premature exercise. This reduction could be more or less depending on the employee's expectations of longevity at the company and his awareness of hedging strategies to avoid early exercise. On grant day we can assume an expected expiration time of 6.3 (10yrs x .63) years
- E. No dividends (no adjustment necessary)
- F. Assume an interest rate of 3.2%(reduces from 4%)

So what would be the value of the employee stock options at the time of grant using the above accurate method.

Intrepid gives \$211,300.00 and Numa gives \$212,100.00, which for our purpose are equal.

Had we not made the corrected assumptions on volatility and time remaining and used the historical volatility of .50 and the full 10 years to expiration, the prices would have been Intrepid \$317,800.00 and Numa \$319,300.00.

So there is quite a difference in pre adjusted prices and post adjusted values.

It also must be mentioned that employees consider there to be additional value to these employee options due to the fact that employees receive them without having to report them as income for tax purposes when granted. The amount of additional value that is ascribed to the options because of this depends on the tax bracket of the employee.

In addition it should be mentioned that the cost to the employer in granting employee options should be considered less than the above adjusted calculations in view of the fact that they pay out no cash and do not generally report their value as an expense. However, the amount of that lower cost is quite difficult to calculate.

Finally, this method of calculating the options value is consistent with FASB (Financing Accounting Standards Board) Section 123. It merely gives a better calculation of volatility and time remaining than using "historical volatility" and using the full term to expiration.

In summary, we have demonstrated a method to calculate the value of employee stock options. If we were to consider the precise particulars of a particular employee options contract and the particulars of each individual's attitudes we would surely be able to get more precise values. That however is not the purpose of this paper.

The author, JOHN OLAGUES, is a former member of the Chicago Board Options Exchange and the Pacific Stock Exchange for over ten years. He offers a unique view of employee stock options from a trader's standpoint rather than from the standpoint of an accountant or compensation planner or academic. To contact JOHN OLAGUES see www.truthinoptions.com

SO YOU WANT TO EXPENSE EMPLOYEE STOCK OPTIONS

When an employee is granted employee stock options, a contract between the employee and the employer is created, with both parties having certain obligations to perform. No money is paid to the employee at the grant day, or at the vesting day. The only time the employee sees any money directly from the options is when he exercises the options and sells the stock above the exercise price.

The employee can not exercise the options until they vest. The employee in order to have the options vest must stay at the company for several years and perform satisfactorily.

After vesting, the employee must also perform satisfactorily for a longer period unless he will lose some value in his options. This loss of value comes from the fact that he is forced to exercise his options early if he terminates or is terminated.

So the employee receives a payment for long satisfactory work. That payment will be the difference between the stock price and the exercise price whenever he decides to exercise the options. That difference may be zero. So he may get nothing for his services related to his employee stock options contract. It all depends on the future value of the stock.

What are the employer's obligations under the contract? These are merely to deliver a certain number of shares of common stock to the employee if the employee exercises the options. If the options are exercised, the company gets somewhat less than the present value of the stock and essentially pays out to the employee the difference between the stock price and the exercise price as compensation for work performed.

When the employers are called upon to deliver the shares, they either issue new shares and the total shares are diluted or the employer buys shares in the market to prevent dilution.

The positive difference between the exercise price and the stock price at the time of exercise is the compensation that accrues to the employee for his long satisfactory work and should be an expense to the company at that time. This should be the case if the employer allows the total shares to be diluted or not.

If there is no accounting expense charged to the employer when the options are exercised, then the employer's earnings are overstated.

If the employer is required to expense the options at grant day (and I am of the belief that an accurate valuation of the options can be made anytime after granting), this would be a case of requiring the employer to show as an expense the entire cost of the contract when the contract is entered, before any payments are made and before the employee has performed his obligations.

I know of no other case when this is required.

Expensing the options at grant day is like expensing the entire cost of retirement benefits when the employee commences employment. Expensing the options at vesting day is similar to expensing the entire cost of retirement in the middle of the employee's term of employment.

If the options are granted to employees for past work performed and there are no further performances required to exercise his options or to hold on to the options without having the terms change, then there would be some merit in expensing options at grant day or vesting day.

But, since none of the employee options are granted exclusively for past performances and they all require continued performances, it would be wrong to expense the options until they are exercised.

People like Warren Buffett and Alan Greenspan advocate the expensing of employee options at grant date or vesting date. One wonders why?

It seems to me that a better case could be made for expensing the embedded calls in convertible bonds or convertible preferred stock as an expense if one wants to expense options. "If the calls embedded in convertible bonds are not an expense of selling the bonds, what are they?"

Compliments of John Olagues www.truthinoptions.com

PROBABILITIES OF EMPLOYEE STOCK OPTIONS

BEING WORTHLESS AT EXPIRATION

Below is a matrix which illustrates the probabilities of particular employee stock options being worthless at expiration if you believe devotees of the widely used pricing models including the Black Scholes model.

This matrix assumes that the stock price is equal to the strike price which is the case at the grant day and possibly at other times during the life of the options.

If the stock prices are below the strike prices when the calculations are made, then the probabilities of the employee stock options being worthless at expiration day are greater.

Time to expiration	Expected Volatilities				Probabilities of Employee Options being worthless at expiration			
	A	B	C	D	A	B	C	D
10 years	100	80	50	30	87%	78%	56%	28%
7 years	100	80	50	30	82%	74%	55%	31%
5 years	100	80	50	30	77%	70%	53%	34%
3 years	100	80	50	30	73%	66%	53%	37%
1 year	100	80	50	30	64%	60%	52%	42%

As one can see, the longer the time to expiration and the higher the volatility, the greater the probability of the stock being below the strike price and the options worthless at expiration.

If one believes that the probabilities are different, then he does not believe the accuracy of the models. Your writer happens to think that the probabilities are different and the market itself thinks the probabilities are different. But FASB (Financial Accounting Standards Board) and the SEC believe that those probabilities are accurate. The results do seem to make employees concerned about the future value of their options.

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