

Stock Options & Technology

The Effects of Mandatory Options Expensing on Technology Companies

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The Expensing of Stock Options for Technology Companies

In this report we review some of the details of the stock option expense proposal on the table. We also provide tables of data showing historical and projected impact of stock options expensing on the technology companies we follow.

In March of this year, the Financial Accounting Standards Board (FASB) rekindled its desire to force the expensing of stock options. According to the amendments to Financial Accounting Standard (FAS) 123, companies would be required to include the expense of stock options over the vesting period, based on fair value (rather than intrinsic value). The proposal is open for comment until June 30, 2004 and is set to become a requirement for fiscal years beginning after December 15, 2004.

The biggest change being proposed is that "fair value" options expense will become part of the income statement and accordingly is likely to reduce generally accepted accounting principles (GAAP) reported earnings. We believe that investors are increasingly focusing on GAAP earnings to value stocks. We do not think this change will result in a sudden drop in technology stock prices across the board, but we do think that there is some risk associated with companies that have higher stock options expenses than the average.

We also expect that some technology companies will respond to the new rules by altering their stock option compensation schemes. However, the fact that options expense is accrued while outstanding options vest will mean that reducing or removing the impact of stock options expense on the income statement could take some time, even for a company that is committed to making this happen.

Key Points

- The proposed amendments to FAS 123 would require companies to begin expensing share-based compensation for fiscal years beginning after December 15, 2004.
- Although there are a number of details in the new proposal, to first order we do not think there will be significant changes associated with the computation of the amount of stock option expense or the timing of the expense from what companies have already been reporting in 10Q and 10K disclosures.
- Options would be expensed evenly over the vesting period, based on fair value at the date of grant. Given a typical multiyear vesting period for options, the effects of any changes in companies' policies regarding options expensing will take time to have their full impact.

Disclosure Information: Please refer to page 14 of this report for important disclosure information.

Background

In 1995 the Financial Accounting Standards Board issued Financial Accounting Standard 123 (FAS 123), relating to the recognition of option based compensation at its fair value, rather than the intrinsic value provision of Accounting Principal Board (APB) number 25. However, the FASB received intense pressure on the issue, and therefore the requirement was not made mandatory. Rather, companies were only required to disclose in the footnotes of financial statements the impact that expensing of options at fair value would have had on net income and earnings per share. Companies were also required to disclose the assumptions used to derive their fair value estimates.

Amid the recent outbreak of corporate scandal and cries for more transparent accounting, the FASB has resurrected its quest to make expensing options mandatory. In March of this year, the FASB posted an Exposure Draft of its proposed amendments to FAS 123. The document is available for public comment until June 30, 2004. The full document is currently available on the FASB's web site at www.fasb.org. After this time, the FASB will consider final revisions to the standard, based on input received during the comment period and then issue the final pronouncement. The current document calls for companies to begin expensing options in fiscal years beginning after December 15, 2004 (essentially the first quarter of 2005). Figure 1 provides a brief timeline for implementation

FIGURE 1 Timeline

<u>Date</u>	<u>Comment</u>
03/31/04	Exposure Draft placed on FASB web site related to amending FAS 123.
06/30/04	Comment period for public comment on the proposed standard ends.
12/15/04	For all fiscal years beginning after this date, companies will be required to expense stock options at fair value unless the proposal changes.

Source: A.G. Edwards

Current Methodology. Under APB 25, which was issued in 1972, companies were required to record an expense for share based compensation at intrinsic value. In essence, by issuing options with a strike price that was at or above the market price at the time of issue, companies were able to record zero expense (intrinsic value of a call option equals stock price minus exercise price). The majority of companies account for their option grants using this methodology. With the introduction of FAS 123 in 1995, companies had the option of accounting for options at either intrinsic value or fair value. Almost all of the companies that we look at in the technology universe opted to stay with intrinsic value accounting, which resulted in essentially no charges on the income statement as a result of stock option grants (since stock option grants are typically awarded with a strike price that is equal to current stock price).

FAS 123 Explained

Overview. As mentioned above, FAS 123 requires the recognition of compensation expense for share based compensation based on the fair value determined at the grant date. That expense is then recognized equally over the vesting period of the grant. This is important, as the projected expense is recognized, not the actual expense. As such, the company is required to make a number of assumptions to determine the fair value of the option. These assumptions include the risk free rate, expected volatility, expected dividend yield, expected forfeitures, and the suboptimal exercise factor. The required disclosures are discussed in greater detail below. The options are then valued using a lattice model (such as the binomial model) or a closed-form model (such as the Black-Scholes-Merton model). The standard does not specify which model to use but states a bias for the lattice model. The pros and cons of each will be discussed later in this report.

Required Disclosures. As mentioned above, the valuation models employed to determine fair value of options rely on a substantial amount of assumptions. As such, we feel it is highly important to view the assumptions used by the company to determine the fair value. The large

number of assumptions required by valuation models permits ample room for management manipulation and must thus also be monitored. This is especially true within the framework of a lattice model, which potentially has more assumptions than a closed form model. The appendix at the end of this report contains assumption information over the past two years from select technology companies.

Under the amended version of FAS 123, the following disclosures are required of a company with one or more share based compensation programs:

- The nature and general terms of such arrangements that existed during the period and the potential effects of those arrangements on shareholders.
- The effect of compensation cost arising from share-based employee payment arrangement on the income statement.
- The method of estimating the fair value of the goods or services received, or the fair value of the equity instruments granted during the period.

The standard also provides for disclosure of option activity during the reported period (granted, forfeited, exercised, etc.) based on weighted-average exercise prices. In relation to the model used to determine fair value of options, companies are required to disclose the following assumptions, as well as the methodology used to derive them:

- Expected term
- Expected volatility
- Expected dividends
- Risk-free rate
- Discount for post-vesting restrictions and the method used for estimating it.

What Has Changed. By and large, the content of the amended version of FAS 123 is the same as that of its predecessor. The intent of the document remains unchanged. However, the provision allowing for the valuation of options at either intrinsic value or fair value has been removed. In addition, the language of the document has been modified to pertain to “share based” compensation, not simply “stock based” compensation, thus

broadening the scope of the document slightly. The new version of the standard also expresses a preference for the use of a lattice model to value options, due to the higher information content.

A smaller issue piggy-backed on the amendment of FAS 123 is an amendment to FAS 95, statement of cash flows, to require excess tax benefits due to the exercise of employee options to be recorded as an inflow from financing activities, rather than its current status as an operating cash inflow.

Implementation. The current schedule calls for FAS 123 to be applied prospectively for fiscal years beginning after December 15, 2004; however, all share-based compensation awards granted, modified, or settled after December 15, 1994 will be included. This means that while companies will not have to restate previous results, they will be hurt by the recognition of previous years’ share-based compensation expense from grants that have not yet fully vested. Since similar disclosures have been required in footnotes since 1995, this historical reporting requirement should not be that difficult for companies to meet.

Convergence Toward IAS. A secondary goal of FAS 123 is to improve the comparability between companies on an international level. In February 2004, the International Accounting Standards Board (IASB) issued International Financial Reporting Standard (IFRS) 2, Share-based Payment, requiring all enterprises to recognize an expense for all employee services received (and consumed) in exchange from the enterprise’s equity instruments. This standard states that share-based compensation should be accounted for using a fair-value based method, similar to the proposed method in FAS 123. Such a convergence between global accounting standards provides obvious advantages to investors through facilitating greater comparability of financial statements across borders.

Implications

Of course the most important question relating to the expensing of options is what impact it will have. The answer depends on the perspective taken. As such, we analyze the impact of stock options on the technology industry from the standpoint of earnings, cash flow, valuations, and compensation programs.

Earnings. On a GAAP basis, earnings will obviously come down. In fact, some companies will see a sizable hit to earnings. Figure 2 displays the impact in recent years of options expensing on companies in our coverage universe (as reported in company financial statements). In addition, we have extrapolated the effect of options expensing

on our current estimates for 2004 and 2005, based on recent years' impact. As the table shows, the expense due to stock options can vary significantly by company. For comparison, the expensing of stock options would have reduced 2003 EPS for the S&P 500 8.6% and would lower 2004 expected S&P 500 EPS by 7.4%, according to S&P.

FIGURE 2 Options Expensing—Effect on EPS

Company	Ticker	FY End	FY2002 EPS		FY2003 EPS		FY2004E EPS		FY2005E EPS	
			excl. options effects	options impact	excl. options effects	options impact	excl. options effects	options impact	excl. options effects	options impact
ADC Telecom	ADCT	Oct.	(\$1.44)	(\$0.11)	(\$0.10)	(\$0.05)	\$0.01	(\$0.06)	\$0.08	(\$0.06)
Altera	ALTR	Dec.	\$0.23	(\$0.22)	\$0.40	(\$0.22)	\$0.68	(\$0.22)	\$0.95	(\$0.22)
AMD	AMD	Dec.	(\$3.81)	(\$0.43)	(\$0.79)	(\$0.23)	\$0.73	(\$0.30)	\$0.94	(\$0.30)
Analog Devices	ADI	Oct.	\$0.54	(\$0.59)	\$0.83	(\$0.59)	\$1.61	(\$0.65)	\$2.17	(\$0.72)
Applied Mat	AMAT	Oct.	\$0.16	(\$0.19)	(\$0.09)	(\$0.23)	\$0.76	(\$0.20)	na	(\$0.15)
Asyst Tech (4)	ASYT	Mar.	(\$4.21)	(\$0.31)	(\$3.62)	(\$0.48)	(\$2.00)A	(\$0.40)	\$0.14	(\$0.32)
ATMEL	ATML	Dec.	(\$1.37)	(\$0.05)	(\$0.25)	(\$0.03)	\$0.15	(\$0.04)	\$0.44	(\$0.04)
ATMI	ATMI	Dec.	(\$0.99)	(\$0.38)	(\$0.32)	(\$0.30)	\$0.69	(\$0.26)	\$1.27	(\$0.20)
August Tech	AUGT	Dec.	(\$0.69)	(\$0.19)	(\$0.16)	(\$0.11)	\$0.56	(\$0.10)	\$1.22	(\$0.10)
Brooks-Pri	BRKS	Sept.	(\$27.90)	(\$1.57)	(\$5.05)	(\$0.42)	\$0.40	(\$0.30)	\$1.14	(\$0.20)
Cisco	CSCO	Jul.	\$0.25	(\$0.20)	\$0.50	(\$0.18)	\$0.74	(\$0.18)	\$0.83	(\$0.18)
Dell (4)	DELL	Jan	\$0.46	(\$0.27)	\$0.80	(\$0.29)	\$1.01A	(\$0.33)	\$1.25	(\$0.30)
Emulex	ELX	Jun.	(\$1.18)	(\$0.66)	\$0.79	(\$0.36)	\$0.98	(\$0.30)	\$1.09	(\$0.30)
Entegris	ENTG	Aug.	\$0.04	(\$0.07)	\$0.02	(\$0.09)	\$0.30	(\$0.04)	\$0.77	(\$0.04)
Ericsson (1)	ERICY	Dec.	(\$1.58)	(\$0.04)	(\$0.68)	(\$0.01)	\$1.26	(\$0.02)	\$1.43	(\$0.03)
Helix Tech	HELX	Dec.	(\$0.77)	(\$0.02)	(\$0.43)	(\$0.03)	\$0.92	(\$0.04)	\$1.24	(\$0.04)
Hewlett Packard	HPQ	Oct.	(\$0.36)	(\$0.29)	\$0.83	(\$0.24)	\$1.43	(\$0.20)	\$1.73	(\$0.20)
Intel	INTC	Dec.	\$0.46	(\$0.17)	\$0.85	(\$0.14)	\$1.26	(\$0.13)	\$1.67	(\$0.12)
Intersil	ISIL	Dec.	\$0.47	(\$0.42)	\$0.61	(\$0.30)	\$0.89	(\$0.33)	\$1.19	(\$0.36)
KLA-Tencor	KLAC	Jun.	\$1.10	(\$0.63)	\$0.70	(\$0.46)	\$1.17	(\$0.40)	\$2.14	(\$0.30)
Linear Technology	LLTC	Jun.	\$0.60	(\$0.20)	\$0.74	(\$0.24)	\$1.01	(\$0.26)	\$1.37	(\$0.29)
Lucent Technologies	LU	Sept.	(\$3.49)	(\$0.73)	(\$0.29)	(\$0.07)	\$0.12	(\$0.07)	\$0.12	(\$0.07)
Maxim	MXIM	Jun.	\$0.74	(\$0.49)	\$0.91	(\$0.41)	\$1.20	(\$0.45)	\$1.67	(\$0.49)
MEMC	WFR	Dec.	(\$0.17)	(\$0.06)	\$0.53	(\$0.05)	\$0.78	(\$0.05)	\$1.00	(\$0.04)
Micron	MU	Aug.	(\$1.51)	(\$0.63)	(\$2.11)	(\$0.48)	(\$0.01)	(\$0.35)	\$0.51	(\$0.30)
Motorola	MOT	Dec.	(\$1.09)	(\$0.13)	\$0.38	(\$0.09)	\$0.77	(\$0.09)	\$0.89	(\$0.09)
Mykrolis	MYK	Dec.	(\$0.80)	(\$0.38)	(\$0.20)	(\$0.36)	\$0.90	(\$0.30)	\$1.39	(\$0.25)
Nokia (2)	NOK	Dec.	\$0.75	(\$0.09)	\$0.86	(\$0.07)	\$0.91	(\$0.09)	\$1.18	(\$0.09)
Nortel Networks (3)	NT	Dec.	(\$0.85)	(\$0.25)						
Novellus	NVLS	Dec.	\$0.15	(\$0.47)	(\$0.45)	(\$0.42)	\$0.87	(\$0.40)	\$1.78	(\$0.30)
Planar	PLNR	Sept.	(\$0.24)	(\$0.36)	\$1.04	(\$0.28)	\$0.52	(\$0.20)	\$0.36	(\$0.15)
QLogic	QLGC	Mar.	\$0.74	(\$0.30)	\$1.09	(\$0.39)	\$1.54	(\$0.35)	\$1.75	(\$0.35)
QUALCOMM	QCOM	Sept.	\$0.44	(\$0.28)	\$1.01	(\$0.32)	\$1.96	(\$0.32)	\$2.21	(\$0.32)
Tellabs	TLAB	Dec.	(\$0.76)	(\$0.29)	(\$0.58)	(\$0.13)	\$0.32	(\$0.12)	\$0.28	(\$0.13)
Texas Instruments	TXN	Dec.	\$0.22	(\$0.12)	\$0.46	(\$0.24)	\$1.03	(\$0.26)	\$1.35	(\$0.29)
Transmeta	TMTA	Dec.	(\$0.82)	(\$0.29)	(\$0.63)	(\$0.30)	(\$0.45)	(\$0.20)	(\$0.18)	(\$0.20)
Vitesse	VTSS	Sept.	(\$4.45)	(\$0.31)	(\$0.82)	(\$0.19)	(\$0.21)	(\$0.10)	(\$0.05)	(\$0.05)
Xilinx (4)	XLNK	Mar.	(\$0.34)	(\$0.34)	\$0.36	(\$0.33)	\$0.85A	(\$0.26)	\$1.21	(\$0.26)

(1) Estimates use Swedish GAAP

(2) IAS

(3) NT is restating 2000-2003 results

(4) Company already in fiscal 2005, therefore, 2004 numbers are actuals

Sources: Company Reports and A.G. Edwards' Estimates

Cash Flow. As discussed earlier, the proposal also amends FAS 95, which relates to the statement of cash flows. Specifically, the tax benefit from the exercise of employee stock options that companies used to report under cash flow from operations (CFO) will now be classified as a cash flow from financing (CFF). This results in no change to overall cash flow of the firm; however, CFO is sometimes used as a measure of operating performance.

Valuations. We note that many companies and investors have moved to looking at GAAP EPS rather than pro forma EPS over the past few years. We believe that as and when stock option expense does get incorporated into GAAP earnings, most stocks will be valued off these earnings, including the stock option expense, where this is a relatively small amount. We do not expect stock prices across the board in technology to suddenly drop as a result of this accounting change—we think that this pending change is already being absorbed in investors' minds, and we think that when the new rules get implemented there will simply be a corresponding rise in P/E values used to value companies to compensate for the drop in as-reported earnings. As in the past with regard to other accounting items (such as, for example, merger accounting), we think there will be exceptions in cases where the options expense makes the as-reported earnings so small or negative that investors will be forced to back out options expense in order to arrive at any value for a company. We think that stock prices for such companies may be impacted by this accounting change.

- **Compensation Programs.** We think that the new rules might result in an improved consciousness in corporate compensation programs. Historically, employers have not paid much attention to share based compensation programs because they essentially had no impact on the income statement. However, being forced to expense the options will facilitate greater vigilance in terms of the usage of options as compensation, and could lead to the use of alternative means of compensation such as stock grants or more cash bonuses.

Black Scholes Versus Binomial

FAS 123 permits that the fair value of options be estimated using either a lattice model or a

closed form model. Although the FASB does not mandate one over the other, it has stated its preference for a lattice model as it feels lattice models are more accurate when applied honestly. The proposed amendment to FAS 123 actively discourages the use of the Black-Scholes-Merton and other closed-form models, though it does not expressly prevent any company from using such models for computing options expense. There is a clause, however, forbidding reversion to any alternative model once the latest model has been adopted by a company.

Today, the primary lattice model employed is the binomial model. Likewise, the Black-Scholes-Merton model (BSM) is the primary closed form model in use today. As such, we discuss the lattice model in terms of the binomial model and the closed form model in terms of the BSM.

Binomial Model Summary. A binomial model is essentially a tree-like framework with two possible outcomes following each node. A node represents one period in time. At each node, the price of the asset (in this case an option) can either increase or decrease, depending on the probability assigned to it. The model requires the estimation of several inputs, just as does the BSM, but the user has the ability to change these inputs at each node, making the binomial model better able to reflect real life situations. In addition, the binomial model also has the ability to include more information, such as the potential for early exercise (suboptimal exercise factor).

Black Scholes Summary. The Black-Scholes model involves a fairly intricate calculation based on five different inputs (asset price, exercise price, asset price volatility, time to expiration, and the risk free rate). The BSM values options in continuous time and is derived from the same no-arbitrage assumption used to value options with the binomial model. The model holds the assumptions (risk free rate and volatility) constant over the life of the asset, making the calculation simpler.

Problems With Option Price Estimation. The chief problem encountered when trying to value stock options is deriving the estimates required by either model. The estimation of the risk free rate is fairly straightforward (government treasuries with similar time horizon); however, estimating volatility is far more difficult. FASB allows for

companies to determine volatility based on historical or expected results. There is no perfect way to estimate volatility. This is one of the benefits of a lattice model, as it allows for a range of volatilities. Still, the user is required to make this difficult assumption in either model.

Example. Figure 3 illustrates the basic construction of a binomial model. We created a very simple binomial model on a call option granted with exercise price equal to stock price at issue, covering three periods (years). We assumed no dividends and a risk free rate of 6%. Finally, the stock can either increase or decrease by 10% in a given period. Moving through the tree, the capital letter “S” represents the stock price at each node, while the capital “C” represents the call option price. The lower case letters “d” and “u” describe the location of the value in the tree (u=up movement; d=down movement). Based on the probabilities calculated with the binomial no-arbitrage principles, we determine a value for the call option at time zero of \$8.55. Using the Black-Scholes model to value the same scenario produces an option price of \$8.51.

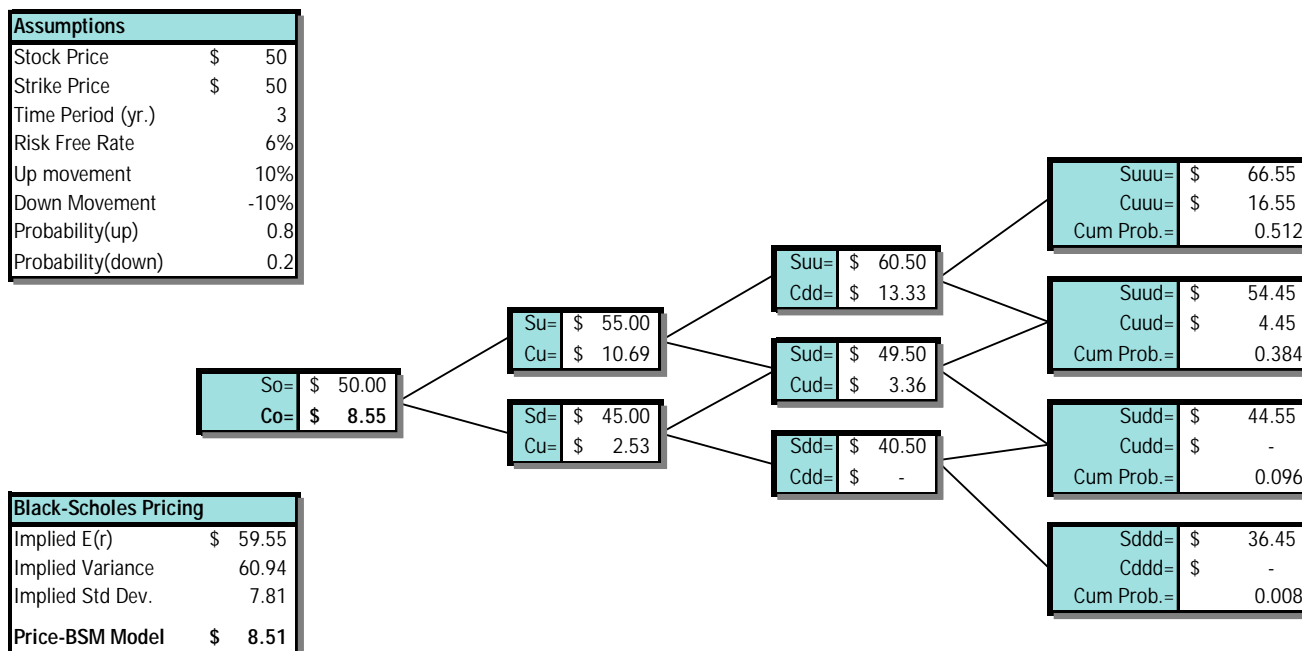
We would note that this binomial model is highly simplified. In actuality, company stock options face many more variables (such as dividend yields, longer time horizons, and changing risk free rates and volatilities), which greatly increase the complexity of the model.

Conclusion. The use of the binomial model allows for the inclusion of much more information than the BSM; however, this information is not necessarily accurate. In addition, the use of a lattice model is far more complicated, making it extremely difficult to provide clear and transparent disclosure. Such a model also presents more opportunities for manipulation by management. Therefore, we feel that most companies will continue to use the Black-Scholes model due to its ease of use advantage over the binomial model.

Glossary of Terms

The following section contains an excerpt of key terms as defined by the Financial Accounting Standards Board in the Exposure Draft for the proposed amendment to FAS 123.

FIGURE 3 Hypothetical Binomial Model



Source: A.G. Edwards

Closed Form Model

A valuation model that uses an equation to produce an estimated fair value. In the context of option valuation, both closed-form models and lattice models are based on risk-neutral valuation and a contingent claims framework. The payoff of a contingent claim, and thus its value, depends on the value(s) of one or more other assets. The contingent claims framework is a valuation methodology that explicitly recognizes that dependency and values the contingent claim as a function of the value of the underlying asset. One application of that methodology is risk-neutral valuation in which the contingent claim can be replicated by a combination of the underlying asset and a risk-free bond. If that replication is possible, the value of the contingent claim can be determined without estimating the expected returns on the underlying asset. The Black-Scholes-Merton formula is a special case of that replication.

Excess Tax Benefit

The realized tax benefit related to the amount (caused by changes in the fair value of the entity's share after the grant date) of deductible compensation cost reported on an employer's tax return for an individual employee's equity instruments in excess of the compensation cost for those instruments recognized for financial reporting purposes.

Fair Value

The amount at which an asset (or liability) could be bought (or incurred) or sold (or settled) in a current transaction between willing parties, that is, other than in a forced or liquidation sale.

Grant Date

The date at which an employer and one or more of its employees reach a mutual understanding of the key terms and conditions of a share-based payment arrangement. The employer becomes contingently obligated on the grant date to issue equity instruments or transfer assets to employees who fulfill vesting requirement. Awards made under a plan that is subject to shareholder approval are not deemed to be granted until that approval is obtained unless approval is essentially a formality (or perfunctory), for example, if management and the members of the board of directors control enough votes to approve the plan. Similarly, individual awards that are subject to

approval by the board of directors, management, or both are not deemed to be granted until all such approvals are obtained. The grant date for an award is the date what an employee begins to benefit from, or be adversely affected by, subsequent changes in the price of the employer's equity shares.

Intrinsic Value

The amount by which the fair value of the underlying stock exceeds the exercise price of an option. For example, an option with an exercise price of \$20 on a stock whose current market price is \$25 has an intrinsic value of \$5. (A nonvested share may be described as an option on that share with an exercise price of zero. Thus, the fair value of a share is the same as the intrinsic value of an option on that share.) [Our comment: We find this definition confusing. In practice, the intrinsic value of an option is the value of the option, not taking into account the passage of time or volatility. For example, an option issued with a strike price that is equal to that of the current stock price has zero "intrinsic value", though clearly it has substantial fair value if the option has a long period to run.]

Lattice Model

A model that produces an estimated fair value based on the assumed changes in prices of a financial instrument over successive periods of time. The binomial model is an example of a lattice model. In each time period, the model assumes that at least two price movements are possible. The lattice represents the evolution of the value of either a financial instrument or a market variable for the purpose of valuing a financial instrument. In this context, a lattice model is based on risk-neutral valuation and a contingent claims framework.

Modification

A change in any of the terms or conditions of an award of share-based compensation, including changes in quantity, exercise price, transferability, settlement provisions, and vesting conditions.

Nonvested Shares

Shares that cannot currently be sold because the employee to whom the shares were granted has not yet satisfied one or more vesting conditions necessary to earn the right to the shares. The

restriction on sale of nonvested shares is due to the forfeitability of the shares if specified events occur (or do not occur).

Reload Option

A reload feature provides for automatic grants of additional options whenever an employee exercises previously granted options using the entity's shares, rather than cash, to satisfy the exercise price. At the time of exercise using shares, the employee is automatically granted a new option, called a reload option, for the shares used to exercise the previous option. The number of reload options granted is the number of shares tendered, and the exercise price of the reload option is the market price of the stock on the date the reload option is granted. All other terms of the reload option, such as expiration date and vesting status, are the same as the terms of the original option.

Replacement Award

An award of share-based compensation that is granted concurrently with the cancellation of another award.

Restricted Shares

Shares for which sale is contractually or governmentally prohibited for a specified period of time. Most grants of shares to employees are better termed nonvested stock because the limitation on sale stems solely from the forfeitability of the shares before employees have satisfied the necessary service or performance condition(s) to earn the rights to the shares.

Service Condition

A condition affecting the vesting (or exercisability), exercise price, or other pertinent factors used in determining the fair value of an award that depends solely on an employee rendering service

to the employer or the requisite service period. A condition that results in the acceleration of vesting in the event of an employee's death, disability, or termination without cause is a service condition.

Share-Based Payment (or Compensation) Arrangement

An arrangement under which (a) one or more suppliers of goods or services receive awards of equity shares, share options, or other equity instruments or (b) the entity incurs liabilities to suppliers (1) in amounts based, at least in part, on the price of the entity's shares or other equity instruments or (2) that require or may require settlement by issuance of the entity's shares.

Vest

To earn the rights to, which is when an employee has rendered the requisite service. An employee's share-based payment award becomes vested at the date that the employee's right to receive or retain shares, other equity instruments, or cash under the award is no longer contingent on satisfaction of either a service condition or a performance condition.

Volatility

A measure of the amount by which a financial variable such as a price has fluctuated (historical volatility) or is expected to fluctuate (expected volatility) during a period. Volatility also may be defined as a probability-weighted measure of the dispersion of returns about the mean. The volatility of a share price is the standard deviation of the continuously compounded rates of return on the shares over a specified period. That is the same as the standard deviation of the differences in the natural logarithms of the stock prices plus dividends, if any, over the period. The higher the volatility, the more the returns on the shares can be expected to vary—up or down. Volatility is typically expressed in annualized terms.

Analyst Certification Statement

The research analyst who is primarily responsible for coverage of any subject company/companies and securities in this report has represented that the report accurately reflects that analyst's personal views. The research analyst further certifies that he or she receives no compensation that is directly or indirectly related to the specific recommendations or views contained within this report.

Appendix—Option Expense Detailed Examples

APPLIED MATERIALS (AMAT)

	2002					2003					2004	
	Jan-02	Apr-02	Jul-02	Oct-02	FY02	Jan-03	Apr-03	Jul-03	Oct-03	FY03	Jan-04	Apr-04
GAAP net income (\$K)	(\$45)	\$52	\$115	\$147	\$269	(\$66)	(\$62)	(\$37)	\$15	(\$149)	\$82	\$373
Less: fair value effect of FAS 123	\$82	\$74	\$84	\$77	\$317	\$94	\$100	\$97	\$98	\$389	\$82	\$87
GAAP net income, FAS 123	(\$127)	(\$22)	\$31	\$70	(\$48)	(\$160)	(\$162)	(\$134)	(\$82)	(\$538)	\$1	\$287
GAAP EPS (Diluted)	(\$0.03)	\$0.03	\$0.07	\$0.09	\$0.16	(\$0.04)	(\$0.04)	(\$0.02)	\$0.01	(\$0.09)	\$0.05	\$0.22
GAAP EPS (Dil.), FAS 123	(\$0.08)	(\$0.01)	\$0.02	\$0.04	(\$0.03)	(\$0.10)	(\$0.10)	(\$0.08)	(\$0.04)	(\$0.32)	\$0.00	\$0.17
Cash EPS (Diluted)						\$0.00	\$0.03	\$0.05	\$0.06	\$0.14	\$0.12	\$0.22
<u>Assumptions</u>												
Expected Life (in years)					3.6					3.6		
Risk free rate					3.6%					2.0%		
Volatility					0.69					0.67		
Dividend Yield					0.0%					0.0%		

Cisco Systems (CSCO)

	2002	2003				2004			
	FY02	Q1-Oct	Q2-Jan	Q3-Apr	Q4-Jul	FY03	Q1-Oct	Q2-Jan	Q3-Apr
GAAP net income (\$M)	\$1,893	\$618	\$991	\$987	\$982	\$3,578	\$1,086	\$724	\$1,211
Less: fair value effect of FAS 123	(\$1,520)	(\$368)	(\$313)	(\$291)	(\$287)	(\$1,259)	(\$327)	(\$312)	(\$311)
GAAP net income, FAS 123	\$373	\$250	\$678	\$696	\$695	\$2,319	\$759	\$412	\$900
GAAP EPS (Diluted)	\$0.25	\$0.08	\$0.14	\$0.14	\$0.14	\$0.50	\$0.15	\$0.10	\$0.17
GAAP EPS (Dil.), FAS 123	\$0.05	\$0.03	\$0.09	\$0.10	\$0.10	\$0.32	\$0.11	\$0.06	\$0.13
Cash EPS (Diluted)	\$0.39	\$0.14	\$0.15	\$0.15	\$0.15	\$0.59	\$0.17	\$0.18	\$0.19
<u>Assumptions</u>									
Expected Life (in years)						5.5			5.8
Risk free rate						4.7%			3.2%
Volatility						0.475			0.457
Dividend Yield						0.0%			0.0%

Sources: Company Reports and A.G. Edwards

Appendix—Option Expense Detailed Examples (continued)**Dell (DELL)**

	2003					2004				
	Apr-02	Jul-02	Oct-02	Jan-03	FY03	Apr-03	Jul-03	Oct-03	Jan-04	FY04
GAAP net income (\$M)	\$457	\$501	\$561	\$603	\$2,122	\$598	\$621	\$677	\$749	\$2,645
Less: fair value effect of FAS 123	\$181	\$181	\$181	\$180	\$723	\$231	\$207	\$178	\$213	\$829
GAAP net income, FAS 123	\$276	\$320	\$380	\$423	\$1,399	\$367	\$414	\$499	\$536	\$1,816
GAAP EPS (Diluted)	\$0.17	\$0.19	\$0.21	\$0.23	\$0.80	\$0.23	\$0.24	\$0.26	\$0.28	\$1.01
GAAP EPS (Dil.), FAS 123	\$0.10	\$0.12	\$0.14	\$0.15	\$0.51	\$0.14	\$0.16	\$0.19	\$0.19	\$0.68

Assumptions

Expected Life (in years)	5.0	3.8
Risk free rate	3.8%	3.0%
Volatility	0.43	0.43
Dividend Yield	0.0%	0.0%

Hewlett Packard (HPQ)

	2002	2003				2004	
	FY02	Jan-03	Apr-03	Jul-03	Oct-03	FY03	Jan-04
GAAP net income (\$M)	(\$903)	\$721	\$659	\$297	\$862	\$2,539	\$936
Less: fair value effect of FAS 123	\$714	\$174	\$172	\$190	\$197	\$733	\$150
GAAP net income, FAS 123	(\$1,617)	\$547	\$487	\$107	\$665	\$1,806	\$786
GAAP EPS (Diluted)	(\$0.36)	\$0.24	\$0.22	\$0.10	\$0.27	\$0.83	\$0.30
GAAP EPS (Dil.), FAS 123	(\$0.65)	\$0.18	\$0.16	\$0.04	\$0.21	\$0.59	\$0.26
Cash EPS (Diluted)	\$0.00	\$0.29	\$0.29	\$0.23	\$0.36	\$1.16	\$0.35

Assumptions

Expected Life (in years)	7.0	6.0
Risk free rate	4.8%	3.2%
Volatility	0.39	0.35
Dividend Yield	1.8%	1.8%

Sources: Company Reports and A.G. Edwards

Appendix—Option Expense Detailed Examples (continued)

Intel (INTC)

	2002					2003					2004
	Mar-02	Jun-02	Sep-02	Dec-02	FY02	Mar-03	Jun-03	Sep-03	Dec-03	FY03	Mar-04
GAAP net income (\$M)	\$936	\$446	\$686	\$1,049	\$3,117	\$915	\$896	\$1,657	\$2,173	\$5,641	\$1,730
Less: fair value effect of FAS 123	\$287	\$309	\$274	\$300	\$1,170	\$298	\$290	\$298	\$105	\$991	\$288
GAAP net income, FAS 123	\$649	\$137	\$412	\$749	\$1,947	\$617	\$606	\$1,359	\$2,068	\$4,650	\$1,442
GAAP EPS (Diluted)	\$0.14	\$0.07	\$0.10	\$0.15	\$0.46	\$0.14	\$0.14	\$0.25	\$0.32	\$0.85	\$0.26
GAAP EPS (Dil.), FAS 123	\$0.10	\$0.02	\$0.06	\$0.11	\$0.29	\$0.09	\$0.09	\$0.21	\$0.32	\$0.71	\$0.22

Assumptions

Expected Life (in years)	6.0	4.4
Risk free rate	3.7%	2.2%
Volatility	0.49	0.54
Dividend Yield	0.3%	0.4%

Maxim Integrated Products (MXIM)

	2002	2003				2004			
	FY02	Sep 02	Dec 02	Mar 03	Jun 03	FY03	Sep 03	Dec 03	Mar 04
GAAP net income (\$K)	\$259	\$73	\$77	\$78	\$82	\$310	\$87	\$99	\$109
Less: fair value effect of FAS 123	(\$172)	(\$36)	(\$28)	(\$44)	(\$32)	(\$140)	(\$16)	(\$38)	(\$40)
GAAP net income, FAS 123	\$87	\$37	\$49	\$34	\$50	\$170	\$71	\$60	\$69
GAAP EPS (Diluted)	\$0.73	\$0.22	\$0.23	\$0.23	\$0.24	\$0.92	\$0.25	\$0.28	\$0.31
GAAP EPS (Dil.), FAS 123	\$0.25	\$0.11	\$0.15	\$0.10	\$0.14	\$0.50	\$0.21	\$0.17	\$0.20

Assumptions

Expected Life (in years)	4.5	4.5
Risk free rate	4.4%	3.0%
Volatility	0.61	0.43
Dividend Yield	0.0%	0.5%

Sources: Company Reports and A.G. Edwards

Appendix—Option Expense Detailed Examples (continued)**Nokia (NOK)**

	<u>2002</u>	<u>2003</u>
	<u>FY02</u>	<u>FY03</u>
GAAP net income (€M)	€3,603	€4,097
Less: fair value effect of FAS 123	€ (447)	€ (322)
GAAP net income, FAS 123	€3,156	€3,775
GAAP EPS (Diluted)	€ 0.75	€ 0.86
GAAP EPS (Dil.), FAS 123	€ 0.66	€ 0.79
Cash EPS (Diluted)	€ 0.84	€ 0.79
<u>Assumptions</u>		
Expected Life (in years)	3.8	3.6
Risk free rate	4.7%	2.8%
Volatility	0.5	0.35
Dividend Yield	1.1%	2.1%

QUALCOMM (QCOM)

	<u>2002</u>	<u>2003</u>				<u>2004</u>		
	<u>FY02</u>	<u>Q1-Dec</u>	<u>Q2-Mar</u>	<u>Q3-Jun</u>	<u>Q4-Sep</u>	<u>FY03</u>	<u>Q1-Dec</u>	<u>Q2-Mar</u>
GAAP net income (\$M)	\$360	\$241	\$103	\$192	\$291	\$827	\$352	\$488
Less: fair value effect of FAS 123	(\$234)	(\$66)	(\$63)	(\$67)	(\$65)	(\$261)	(\$66)	(\$70)
GAAP net income, FAS 123	\$126	\$175	\$40	\$125	\$227	\$566	\$286	\$419
GAAP EPS (Diluted)	\$0.44	\$0.30	\$0.13	\$0.23	\$0.35	\$1.01	\$0.43	\$0.58
GAAP EPS (Dil.), FAS 123	\$0.16	\$0.22	\$0.05	\$0.15	\$0.27	\$0.69	\$0.35	\$0.50
Cash EPS (Diluted)	\$0.98	\$0.43	\$0.39	\$0.33	\$0.29	\$1.43	\$0.50	\$0.53
<u>Assumptions</u>								
Expected Life (in years)	6.0					6		
Risk free rate	4.4%					3.2%		
Volatility	0.58					0.58		
Dividend Yield	0.0%					0.2%		

Sources: Company Reports and A.G. Edwards

Appendix—Option Expense Detailed Examples (continued)

Texas Instruments (TXN)

	2002					2003					2004
	Mar 02	Jun 02	Sep 02	Dec 02	FY02	Mar 03	Jun 03	Sep 03	Dec 03	FY03	Mar 04
GAAP net income (\$M)	(\$39)	\$95	\$188	(\$588)	(\$344)	\$117	\$121	\$447	\$513	\$1,198	\$367
Less: fair value effect of FAS 123	(\$96)	(\$104)	(\$103)	(\$105)	(\$408)	(\$105)	(\$105)	(\$107)	(\$106)	(\$423)	(\$101)
GAAP net income, FAS 123	(\$135)	(\$9)	\$85	(\$693)	(\$752)	\$12	\$16	\$340	\$407	\$775	\$266
GAAP EPS (Diluted)	(\$0.02)	\$0.05	\$0.11	(\$0.34)	(\$0.20)	\$0.07	\$0.07	\$0.25	\$0.29	\$0.68	\$0.21
GAAP EPS (Dil.), FAS 123	(\$0.08)	(\$0.01)	\$0.05	(\$0.39)	(\$0.43)	\$0.01	\$0.01	\$0.19	\$0.23	\$0.44	\$0.15

Assumptions

Expected Life (in years)	5.0	5
Risk free rate	5.0%	2.7%
Volatility	0.56	0.58
Dividend Yield	0.3%	0.5%

Sources: Company Reports and A.G. Edwards

Rating	Master List Companies	Current Rating Distribution	Past 12 months	
			Investment Banking Clients	% of Investment Banking Clients *
Buy	241	37%	44	18%
Hold/Neutral	387	60%	62	16%
Sell	20	3%	1	5%

* Percentage of Investment Banking Clients on Master List by rating.

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