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From: David Chamberlain [mailto:david.chamberlain@tp-options.com]
Sent: Friday, February 06, 2004 2:28 AM
To: Michael Tovey
Subject: EBC Project - Cost Benefit Survey

Michael Tovey
Practice Fellow, FASB

Letter of Comment No: 105C
File Reference: 1101-SCU
Date Received: 02-06-04

Re: Equity-Based Compensation Project

Dear Michael:

I write on behalf for Transfer Pricing Options Consulting (TPOC) in response to your cost-benefit survey for providers of employee stock option accounting software and services. TPOC advises companies on the valuation and treatment of employee stock options for both transfer pricing (tax) and financial accounting purposes. As a matter of principle, we seek to assure that the best theory and practice in the valuation of employee stock options remain firmly in the public domain. To these ends, we have developed basic software implementing lattice models and intend to make it publicly available to the public at little or no charge.

We recognize that the primary targets of your survey are not independent valuation service providers like us, but rather providers of complex software systems that automate option plan administration and have advanced financial accounting and tax compliance capabilities. We understand that you have received responses from several of these providers, but were requested to keep their specific contents confidential. Combining our familiarity with these software products with our "public domain" philosophy, we hope to be able to provide a valuable perspective and a few useful insights. While our chief purpose is to help you prepare to brief the Board at next Wednesday's meeting, we ask that you make our comments available to the general public as well.

We wish to emphasize that there are three distinct areas where the revised standard for equity-based compensation (EBC) will impose costs on companies and their advisors: firstly, development of industry-wide studies of historic employee exercise behavior; secondly, grant-date valuations of specific EBC grants (or modifications); and, thirdly, attribution of option expense to accounting periods. Due to the vastly different time-frames for each of these areas, it is extremely important that the costs of each be considered separately.

I. STUDY OF EMPLOYEE EXERCISE BEHAVIOR

First, at least in the case of broad-based employee stock options, it is vitally important that broad geographic and industry surveys of historic employee exercise behavior be undertaken so that the statistical data needed to calibrate option pricing models may be compiled and publicized. TPOC hopes to play a role in such an effort, but calls upon interested academics to take the lead.

Although measuring volatility has received the lion's share of attention, modeling of employees' expected exercise behavior actually has the greatest impact on valuation. Due to the lack of study, exercise behavior is less well understood and so appears to be a more difficult issue. The cost-benefit survey is rather vague on the issue and the process, stating (at page 20) "historical exercise information and historical stock prices . [are] analyzed through statistical methods to obtain exercise behavior function."

TPOC is concerned that vagueness in final FASB guidance on this topic may result in a free-for-all among companies and valuation experts that greatly reduces comparability and reliability of stock option expense determinations. In our view, there is a straight-forward and workable solution to the exercise behavior issue if industry and academia cooperate to collect and analyze the data.

While a myriad of factors influence an individual employee's option exercise decisions, the number of factors that an option pricing model can take into account with a reasonable level of reliability is quite limited. For example, it would be foolhardy to attempt to model employees' liquidity needs for their children's college tuition, and it would be at odds with other GAAP rules to attempt to anticipate effects of possible changes in tax rules on exercise decisions.

Indeed, we believe there are only two factors that are viable candidates to determine a reliable "exercise behavior function": moneyedness (i.e., strike price as a percent of stock price) and time-to-expiration.

(Note: Vesting and forfeiture effects can, and should, be handled separately -- see notes in following section) More specifically, theoretic models suggest that options will, on average, be exercised at certain moneyedness thresholds that gradually decrease as time-to-expiration shortens. For example, during the fourth year of a full ten-year term, the typical employee may exercise his options if the stock value reaches 200% of the strike price; by the eighth year, the exercise threshold may decrease to 150% moneyedness.

Our key point is that exercise behavior should be studied on a broad geographic and industry-wide basis rather leaving individual companies to rely on their own historic data. It is crucial that sufficient data, reflecting several different stock price paths, be collected in order to draw reliable statistical conclusions. Furthermore, to avoid data biases, it would be far preferable to limit the sample to employee option grants that have run their full course (typically, 10 years) and to include data on all dispositions (e.g., exercise, forfeiture, or expiration) of employee options granted on each grant date.

While the cost of undertaking and maintaining this sort of study is not trivial, EBC is an area of great interest to academic researchers and therefore should be able to find funding. Moreover, at least in the high technology sector, it would be far less expensive to undertake a broad and comprehensive study based on data from representative companies with the cleanest and most extensive data than to expect each company to undertake a similar study using their own limited internal data.

II. VALUATION ISSUES (LATTICE MODELS)

Secondly, we would like to address the valuation issues. In the case of EBC that is treated as equity, these are one-time endeavors based on grant-date or modification-date values and expectations. (For EBC classified as liability, similar one-off valuation exercises must be undertaken on a quarterly basis in order to mark values to market for each financial statement.)

TPOC offers valuation services and basic option pricing software in this area, as do other independent consultants. While many full-function option administration software packages provide rudimentary valuation capabilities (e.g., Black-Scholes), most also allow users to input their own grant-date valuations.

Costs here do not need to be large. Basic lattice models are widely known and well-understood, and are publicly available in many articles, textbooks and other sources. We charge between \$10,000 and \$40,000 for a valuation report covering a single EBC grant date, and provide the calibrated option pricing model with the fee. As noted above, we intend to make the model available to the public at little or no charge -- provided we are satisfied that it remains consistent with final FASB standards. In addition to reflecting contractual life and vesting terms, TPOC's model adds two additional parameters to those in FAS 123: a fixed expected exercise threshold and a fixed employee turnover rate. (Note: expected life is an output rather than an input in TPOC's model.)

A. Variable Parameters Over Time

Although it is not particularly difficult to implement a lattice model that allows parameters to vary over time, we question whether the hypothetical accuracy gain outweighs the loss of transparency (and resulting risk of abuse). The simplest variable to incorporate in the model would be the term structure of interest rates, which is well understood and can be objectively determined. However, this refinement would not have a material impact on the overall valuation -- especially, compared to the many other estimates involved in applying the model. More importantly, while financial statement users are able to assess the reasonableness of the company's interest rate assumption under current FAS 123 standards, the term structure used in modeling would either be opaque to users or would greatly increase the company's disclosure burden.

Introducing a term structure of volatility, on the other hand, may well have a material effect on the valuation. However, we seriously question whether the "science" of option pricing research in this area is sufficiently developed. The possibility of rogue issuers manipulating valuations, or of charlatans masquerading as option pricing "experts" providing unreliable valuations, is simply too great in our opinion. Again, unless disclosure requirements are greatly increased, the ability of users to make an independent assessment of the reasonableness of the company's volatility assumptions will be severely impaired if variability over time is allowed.

Expected changes in dividend policies is the only area where we tend to agree that both modeling and disclosure should be required. Dividend

levels have a significant impact on valuation both directly (by affecting "cost of carry") and indirectly (by affecting early exercise behavior). Happily, most of our clients in the high technology industry do not have to contend with this complexity since they do not pay dividends.

At the very least, TPOC hopes that the final standard does not mandate use of variable parameters over time. If variable parameters are allowed (or required) by the final standard, TPOC intends to offer valuation services that incorporate them; however, we expect our average fee for a valuation report would double or triple (\$40,000 to \$80,000 for each EBC grant). TPOC does NOT intend to make an option pricing model that allows variable parameters over time available to the general public.

B. Service Conditions

TPOC believes that option models for employee stock options should directly reflect the effects of employee turnover. For options that have not yet vested, the resulting forfeiture relieves the company of all EBC expense. After vesting, employee turnover has the effect of "forcing" early exercise even if the stock price is below the employee's exercise threshold, which reduces the expected cost of the option to the company.

Both effects of employee turnover are already incorporated in TPOC's lattice model, using a fixed annual turnover rate assumption. (As with other parameters, while it is possible to vary this parameter over time, we question whether it is necessary or appropriate.) There will be some additional cost of compliance if a "true-up" is necessary because actual pre-vesting forfeitures materially differ from assumptions.

As with employee exercise behavior, there is also an up-front calibration issue with respect to employee turnover rates. However, unlike average exercise thresholds (where industry-wide data is greatly preferred), company-specific data is entirely appropriate here. We understand that the leading option administration software systems are able to provide this data. In any event, any company's human resources department should be able to gather the data at minimal cost.

C. Market and Performance Conditions

As proposed, the revised standard would require that the effect of market conditions be incorporated in grant-date valuations. TPOC approves of this approach, and believes that such conditions can generally be incorporated in a lattice model at a reasonable additional cost. However, due to the many possible variations, we will not include this capability in the model we plan to make available to the public.

Performance conditions, on the other hand, would not be incorporated in grant-date valuations; rather, the company would determine the grant-date value of EBC, ignoring the performance conditions, but would only recognize expense when it is probable that the conditions will be met. TPOC understands the Board's reasons for adopting this approach and accepts it as a reasonable compromise. We urge, however, that the

final standard require companies to make grant-date disclosures of both the "as-if" valuation of the EBC and their assessment whether the condition is probable or improbable.

D. Vesting Tranches

Requiring a separate valuation of each "tranche" of options by vesting date is perhaps the most costly of the Board's intended changes to FAS 123. This is because it has become a common practice for companies to issue options that vest on a ratable monthly basis over a several year period. For example, in a typical grant, one-quarter of the options may "cliff" vest at the end of the first year, while the remaining three-quarters vest ratably over the next three years -- resulting in a total of 36 separate tranches!

As we briefly describe in the following section, this requirement chiefly complicates the attribution of expense to periods and therefore may make full-feature option accounting software more expensive. The initial valuation issues can be solved relatively easily. TPOC's binomial model already takes into account complex vesting patterns (by tracking percent of options vested at each node in the lattice). We will be adding a capability to "de-compose" the overall valuation into the values of separate tranches once the likely final standard becomes clear. While we do not have a strong opinion on the issue, we urge the Board to consider reasonable aggregation rules (e.g., all options that vest during a single year or quarter may be grouped into a tranche).

III. ATTRIBUTION ISSUES (ACCOUNTING SOFTWARE)

Finally, for the sake of completeness, we provide a brief overview of some other issues that providers of full-feature option accounting software will face due to proposed changes to the EBC standard. Again, since TPOC does not provide software or services in this area, we will not venture any estimates of the cost of compliance.

Characterization (Equity vs. Liability). We note that there will be an entirely separate accounting regimes for EBC classified as liability rather than equity. Software providers should provide separate cost-benefit responses for each regime. It is possible that some providers will chose to support only the equity side.

Market and Service Conditions - Accruals and Reversals. These are the core tasks of option accounting software: to properly attribute the grant-date valuation of each tranche to each reporting period over which the options vest, and to reverse previously recognized expense for those options that fail to vest. Clearly, the complexity of these tasks is related to the number of vesting tranches that must be distinguished.

Performance Conditions - Probability Switch. In the case of performance conditions, accounting software will have to deal with recognizing and/or reversing expense as the probable-improbable switch turns on and off.

Other Issues. Among the other issues that will have be addressed are: changes in the method of accounting for plan modifications and changes in handling income tax effects. Cost-benefit feedback on disclosure

requirements will likely have to wait for more definitive indications of the Board's intentions.

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Thank you for your continuing efforts on this project and your consideration of these comments. Should you want clarification of any of these comments, please do not hesitate to call.

Sincerely,

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