

April 14, 2004

Director of Major Projects  
Financial Accounting Standards Board  
[director@fasb.org](mailto:director@fasb.org)

**Re: File Reference No. 1102-100 [Issue 4 (c) of Proposed Amended FAS 123]**

To the Director:

In proposed Amended FAS 123, I applaud the Board for essentially prioritizing the primary accounting quality of relevance (i.e., costs should be recognized on the income statement) over reliability (i.e., cost estimates should be unbiased and accurate). I would like to comment only on issue 4 (c) specifically, as I believe this question is central to the debate.

The secondary quality of accounting is comparability, and I believe the proposal suffers against this test due to the proposed guidance concerning “expected volatility.” The practical issue is that—given the same exact data concerning an option grant at a particular company at a particular time—two different experts can still compute two disparate fair values. Therefore, critics will still be able to suggest that a company can try to “manage” the expense estimate toward its minimum level. As I understand the guidance in B24 - B26, the understandable intent is to encourage companies to rigorously compute the most accurate estimate of their stock’s expected volatility.

Having computed fair value estimate for dozens of clients over the years, I believe the practical implications of B24 to B26 will reduce to the following:

- Implied volatility from traded options will be considered. However, implied volatilities of short-term traded options are themselves volatile. If they exhibit any tendency, it is regression to the mean (as documented by Jeremy Siegel in *Stocks for the Long Run* and assumed by the popular GARCH models). If this is true, implied volatility is sensitive (random) to the particular instant during which it is determined. Therefore, unless a company’s options trade with stable implied volatility, the use of implied volatility by itself is inherently random.
- The term structure of volatility is unlikely to be of practical use other than to support a regression to the mean assumption (i.e., the fading of a historically high volatility to a lower volatility over time or vice-versa). Unlike the term structure of interest rates which has a normal upward slope, to my knowledge, nobody has proven that the term structure of volatility exhibits any persistent upward or downward trend. Arguably the leading academic on this topic, John Hull, says “volatility tends to be an increasing function of maturity when short-dated volatilities are historically low...similarly, volatility tends to be an decreasing function of maturity when short-term volatilities are historically high (Options, Futures, and Other Derivative 5<sup>th</sup> Edition, Hull, 2003). As the term structure exhibits no a priori slope, it will in practice be invoked to justify a range or “fade” from a historically high or low average.

- Companies will continue to compute historical volatility as a proxy for expected volatility. As a second step, given your guidance in Amended FAS 123, they will attach a range to the extent that they deem the historical volatility to be too high or too low in order to affect a “fade.” In which case, the calculation of historical volatility will remain as the primary driver.

Assuming companies will start with a calculation of historical volatility, I illustrate the problem below. In an article I wrote for investopedia.com (“The Uses and Limits of Volatility”), I calculated volatility for the S&P 500 over various durations and intervals. The results are shown below, but the point is that, if you want to know the historical volatility of the S&P 500 as of 1/31/04, the answer can vary from 14.7% to 21.1% depending on the duration and interval.

<b>Standard Deviation S&amp;P 500 Over 10 Year Period Ending 1/31/04</b>			
	<b>5 Year</b>	<b>10 Years</b>	<b>15 Years</b>
<b>At Interval:</b>			
Daily	1.3%	1.1%	1.0%
Weekly	2.7%	2.4%	2.1%
Monthly	4.9%	4.5%	4.3%
<b>Annualized (multiplied by square root of # of intervals)</b>			
	<b>5 Year</b>	<b>10 Years</b>	<b>15 Years</b>
<b>At Interval:</b>			
Daily	21.1%	18.1%	16.4%
Weekly	19.7%	17.0%	15.5%
Monthly	17.0%	15.8%	14.7%
<b>Range of outcomes: 14.7% to 21.1%</b>			

Given this variability, I suggest you lock-down the methodology for calculating historical volatility; c.g., insist that historical volatility be based on a 3 year or 5 year historical term/duration and specified intervals (monthly or weekly). Your other guidance can still remain as adjustments. You can still insist that a company apply discretion to the extent they have a good reason to believe expected volatility will “fade” or deviate from the historical level. But doing this would greatly increase the comparability of the fair value estimate.

Thank you,  
 David Harper  
 Principal  
 Investor Alternatives LLC  
 Author “How to Value a Stock Option” (NCEO 2003)