



January 6, 2004

Ms. Suzanne Bielstein  
Director of Major Projects and Technical Activities  
Financial Accounting Standards Board  
401 Merritt 7  
Norwalk, CT 06856-5116

Letter of Comment No: 122  
File Reference: 1101-SCU  
Date Received: 01/07/04

Re: *Accounting for Equity-Based Compensation*

Dear Ms. Bielstein:

Merck & Co., Inc. is a New Jersey based corporation with its principal place of business at One Merck Drive, P.O. Box 100, Whitehouse Station, New Jersey 08889-0100. The Company is a global research-driven pharmaceutical products organization that discovers, develops, manufactures and markets a broad range of innovative products to improve human and animal health. We are pleased to provide you with our comments on *Accounting for Equity-Based Compensation*.

We agree that grants of employee stock options ("ESOs") are a form of employee compensation that should be recognized as an expense. However, as the Board already acknowledges, there are challenges in determining the appropriate amount of that expense and use of the standard Black-Scholes or Binomial option pricing models allows for a great deal of subjectivity, particularly with respect to the estimated life assumption intended to compensate for the non-transferability aspect of the awards. Additionally, minor variations in the judgmental valuation inputs for expected life and volatility can yield significantly different results. We do not believe that these valuation concerns should be addressed by allowing more latitude in valuation methodology, but rather comparability, consistency and objectivity will be best achieved through a standard valuation approach mandated by the FASB. Therefore, we ask the Board to consider the valuation methodology outlined below, which, in our view, more accurately reflects the non-transferability feature of ESOs and minimizes the subjectivity of the measurement to the volatility assumption.

#### **Limitation of Current SFAS 123 Valuation Guidance**

SFAS 123 does not mandate a specific method to value ESOs. The statement does require that the fair value of ESOs be determined using an option-pricing model that takes into account (1) the stock price at the grant date, (2) the exercise price, (3) the expected life of the option, (4) the volatility of the underlying stock, (5) the expected dividends, and (6) the risk-free interest rate over the expected life of the option.

Option pricing models, including the widely-used Black-Scholes model, were developed to value publicly traded call options in a liquid market, not non-transferable ESOs subject to vesting restrictions and forfeiture. ESOs differ from publicly traded options in several ways, including the significant characteristic that ESOs are *non-transferable*. Unlike call options, ESOs cannot be bought or sold. In order to realize value from an ESO, the employee must exercise the option and sell the stock.

SFAS 123 adjusts for non-transferability by reducing the life of the option in the valuation models from full term to the expected life. The expected life is difficult to estimate because it depends on many factors and is open to subjectivity. In addition, estimating stock price volatility over the expected life can also be problematic and open to manipulation. Both of these assumptions can greatly impact ESO values and subjective estimates among companies in deriving these assumptions cause comparability issues.

### **Suggested Valuation Method**

We agree that the value of an ESO should to be adjusted for non-transferability. However, the use of an expected life adjustment in the traded option valuation models may not be the best approach. To adjust for non-transferability, we suggest first calculating the full-term option value obtained via Black-Scholes (or an alternative valuation method such as binomial tree) and then subtracting the value of a put on the underlying call option ("put-on-call"). This put-on-call represents the right, but not the obligation, to sell the underlying call option. As such, this put-on-call value represents the value of the selling privilege embedded in the freely-traded option price which is not available to ESO holders due to non-transferability rules and vesting requirements. The put-on-call option value can easily be calculated using readily available compound option calculators and the same input variables required by Black-Scholes or Binomial option pricing models. The use of options to discount for non-transferability has periodically been discussed in academic journals, and most recently an article recommending the use of a put-on-call approach to adjust for non-transferability was the subject of an article in the February 2002 edition of The CPA Journal.<sup>1</sup>

The main benefits of the put-on-call discount approach are that it eliminates the need and subjectivity of estimating the expected life of the ESO, and reduces the sensitivity of the ESO value to the volatility assumption because both the call value and the offsetting put-on-call value are dependent on volatility. The benefits of this put-on-call approach can be best illustrated using an example. Consider an ESO with the following attributes:

Spot price	\$50
Exercise price	\$50
Term	10 yrs
Vesting period	3 yrs
Expected life	6 yrs
Volatility	30%
Risk-free rate	3%
Dividend yield	2%

The Black-Scholes value of this option using the current SFAS 123 guidance is \$13.67 (point A in Figure 1), and \$7.79 using the put-on-call approach recommended above (point B in Figure 1). If one were to change the expected life and volatility assumptions slightly this would lead to a range of possible ESO values. For example, as shown in Figure 1, if one assumed an expected life of 5 or 7 years, or volatilities of 25% or 35%, current SFAS 123 guidance would generate ESO values ranging from \$10.85 to \$16.49, representing a change of  $\pm 21\%$  from the original ESO value of \$13.67. In contrast, ESO values using the put-on-call approach would only provide ESO values ranging from \$7.06 to \$8.41, representing a change of approximately  $\pm 9\%$  because the ESO result is independent of the expected life assumption and less sensitive to changes in the volatility assumption.

The use of a put-on-call approach to adjust for non-transferability is a theoretically understandable method in valuing the embedded selling privilege within the ESO grant. In our opinion, it is a better way to adjust for non-transferability than the current practice under SFAS 123 of using an expected life estimate.

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<sup>1</sup> "The Valrex Model for Valuing Employee Stock Options," by Marc S. Katsanis, CFA, CPA, Chaffe & Associates, Inc., The CPA Journal, February 2002.

Additionally, the put-on-call approach removes subjectivity in the ESO calculation by eliminating the need to estimate expected life and by making the ESO value less sensitive to the volatility assumption. Finally, the put-on-call approach is simple to use and would create more relevant comparisons among companies than does the current valuation approach under SFAS 123.

We would be pleased to discuss our comments with you at your convenience.

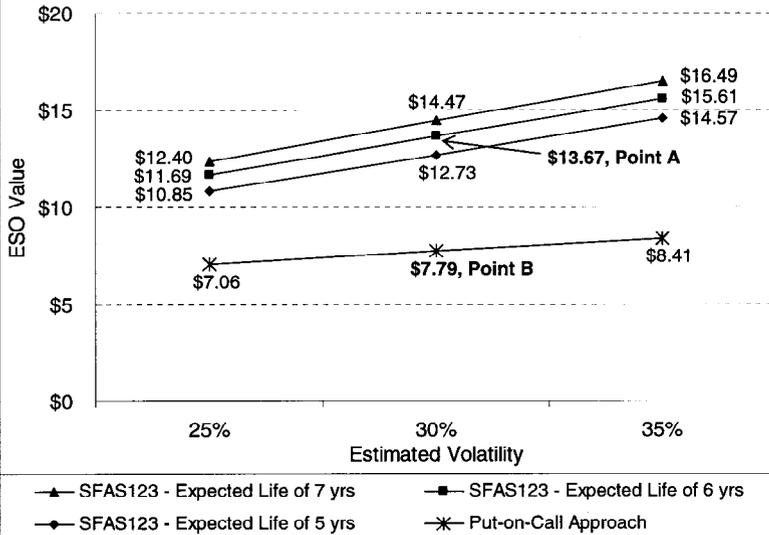
Sincerely,

/s/ Richard C. Henriques

Richard C. Henriques  
Vice President, Controller  
Merck & Co., Inc.

cc: J.C. Lewent - Executive Vice President & Chief Financial Officer, President, Human Health Asia  
C. Dorsa - Vice President and Treasurer

Figure 1 - ESO Values And Sensitivities to Volatility and Expected Life Assumptions



ESO Value Using Current SFAS123 Guidance			
Expected Life	Volatility		
	25%	30%	35%
7 years	\$ 12.40	\$ 14.47	\$ 16.49
6 years	\$ 11.69	\$ 13.67	\$ 15.61
5 years	\$ 10.85	\$ 12.73	\$ 14.57

*Black Scholes Option Pricing Model Used*

ESO Value Using Put-on-Call Approach			
	Volatility		
	25%	30%	35%
Full-term option value (A)	\$ 14.02	\$ 16.25	\$ 18.39
"Put-on-Call" option value (B)	\$ 6.96	\$ 8.46	\$ 9.98
ESO Value (A-B)	\$ 7.06	\$ 7.79	\$ 8.41

*Black Scholes and Compound Option Pricing Models Used*