

International Valuation Standards Board
41 Moorgate
London
EC2R 6PP

11 October 2013

Dear Sirs

Re: Exposure Draft (ED) on the Valuation of Equity Derivatives

We are responding to your invitation to comment on the above exposure draft on behalf of PricewaterhouseCoopers.

Following consultation with several members of the PricewaterhouseCoopers network of firms, this response summarises their views. "PricewaterhouseCoopers" refers to the network of member firms of PricewaterhouseCoopers International Limited, each of which is a separate and independent legal entity.

PricewaterhouseCoopers appreciates the International Valuation Standards Committee (IVSC) Standards Board (Board) efforts in the process and welcomes the opportunity to provide comments on the ED that sets out the Board's proposals for a future Technical Information Paper (TIP) on this topic. We have in this letter outlined our general comments and then, as requested in the ED, responded to the specific questions for comment in Appendix A.

We agree that the valuation of financial products is a complex area and that guidance to improve consistency and transparency in their valuation is desirable. While the proposed TIP includes a helpful inventory of equity derivatives and valuation techniques, it is not clear to us what the Board's plan is for addressing the broader issue of valuing financial products. Before releasing this TIP or any other piecemeal guidance, we believe the Board should undertake a project to define its plan for addressing this area, and be sure that this TIP and other guidance fits within that overall plan.

The ED as currently drafted is primarily an inventory of various types of equity derivatives that exist in the market and an inventory of valuation techniques. We do not think as drafted the ED meets one of its stated objectives "Provide information that is helpful to valuation professionals in exercising the judgements they are required to make during the valuation process in specific situations", as it does not provide a framework for making such judgements. We acknowledge that it is challenging to strike the proper balance between standards that are too generic such that they do not provide useful guidance and standards that are too prescriptive such that they may not be applicable given a certain set of facts and circumstances. However, to be useful the ED should have a set of principles that will provide the valuation professional with a framework for making judgements about a particular set of facts and circumstances such that diversity in practice is reduced. Illustrations pointing to specific, commonly accepted implementation methods for particular types of equity derivatives would also be helpful in achieving these objectives.



We would be happy to participate in any round-table discussions that the Board may decide to hold to discuss the comments received on the ED.

If you have any questions on the content of this letter, please do not hesitate to contact John Glynn, PwC Global Valuations Leader (+1 646 471 8420), Romil Radia, UK Valuations partner (+44 20 7804 7899) or John Hitchins, PwC Global Chief Accountant (+44 20 7804 2497).

Yours faithfully,

A handwritten signature in blue ink that reads "PricewaterhouseCoopers LLP".

PricewaterhouseCoopers LLP



Appendix A – answers to specific questions

1. Under the heading of “Equity derivative Products” (para 11-22) the main types of equity derivatives are listed. Do you believe there are any material omissions? If so, please indicate what they are.

We consider the list to be sufficiently exhaustive. Some additional exotic option types that the authors might consider including are Basket options, Compound options, and Chooser options.

2. Do you believe the descriptions provided for each of the listed products are sufficiently detailed?

It appears to us that the descriptions are sufficient for a basic understanding of the nature of the options.

3. Do you think more complicated derivatives and strategies should be included? For example where products are combined, such as in straddles and strangles.

As the options strategies such as straddles and strangles can be represented as combinations of simpler options, it does not appear necessary to list each separately.

4, 5. The discussion on forwards (para 23 to 27) includes a number of formulae. Do you find the inclusion of formulae to be helpful in understanding the principles or would you prefer a purely descriptive narrative?

Would you prefer to see greater use being made of formulae to illustrate principles in other parts of the TIP?

Considering the brief nature of the paper, and the complexity of the mathematical formulae involved in option valuation, it does not appear feasible to introduce formulae required for all valuation models and instruments discussed. As such, it may be more consistent to limit the paper to a descriptive narrative for all the instruments, as well as the forwards.

Instead, we would suggest introducing extensive references to commonly used textbooks on the subject matter, such as John C. Hull, “Options, Futures, and Other Derivatives”, Robert E. Whaley, “Derivatives: Markets, Valuation, and Risk Management” and Don Chance, “Analysis of Derivatives



for the CFA Program”. These provide the relevant formulae, as well as implementation guidance, for the models discussed in the TIP.

6. The discussion of various models types includes the key assumptions and other inputs required. The objective is not to provide detailed instruction on the use of the model, but do you think the information on these inputs is sufficiently detailed to provide an understanding of the principles involved by someone relying on the valuation?

It does not appear to us that the description would be entirely sufficient for someone not familiar with option pricing, especially in some of the more complex model descriptions, such as that of jump diffusion and alternative diffusion models. In order to avoid overwhelming the reader with theoretical complexity, we would suggest introducing references for further reading on these items.

7. Do you believe the model section of this paper should discuss each model’s relative applications and when it is appropriate to use one rather than another, for example, by mapping each model to a list of products.

While a complete mapping might be cumbersome, describing where a specific model is most appropriate to use would be helpful for the reader as well as situations where certain models are not suitable.

8. “The Greeks” are summarized with brief descriptions in this paper. Do you believe it would be helpful if there were a more detailed discussion of sensitivities?

The summary description appears appropriate given the scope of the paper, with more detailed description of these sensitivities and the methods of calculating those provided in a reference.

9. Please list the departments within your organization that you believe would find this document useful, e.g. Executive Management, Treasury, Risk, Financial Reporting, Product Control etc.

Within our organization, professionals that would most benefit from this document might be the audit engagement teams that encounter equity derivatives valuations as a part of audit work, as well as valuation professionals that do not have a developed expertise in the field, yet encounter equity derivatives valuations on an occasional basis.



10. Do you consider that the overall level scope and level of detail in this proposed TIP is sufficient to meet its objective of reducing diversity of practice and raising awareness of the principle methods used for valuing equity instruments among the wider financial community, and in particular investors?

See the body of our letter for our response to this question.

Additional Comments

1. In paragraph 30, it is mentioned that the equity leg of an equity swap is valued using option pricing techniques. We note that commonly, valuation of an equity swap does not require an option pricing approach, as the equity leg is a non-optional derivative having a linear payoff, thus its value does not depend on the volatility of the stock.

2. Paragraph 37 mentions that under the Geometric Brownian Motion ("GBM"), the stock price follows a Normal Distribution. We note that while under GBM, the returns of the stock follow a Normal Distribution, the stock price itself follows a lognormal distribution, ensuring that the prices do not attain a negative value.

3. In paragraph 85, under the Trees section, it might be helpful to mention that tree models are not feasible for valuing path dependent options. It may also be worth noting that, while computationally, finite difference methods may be as good or superior to the tree models, the tree models provide a greater simplicity of implementation and an easier intuitive understanding of the results.

4. We note that the authors might consider introducing a section on the Merton/contingent claims approach for valuing securities in an enterprise, including equity derivatives such as options, warrants, convertible notes, preferred shares, etc. We understand that it is a broad topic and as such, might be better suited for a separate publication. However, this is a methodology that is widely used in practice and is subject to a number of common pitfalls.