



INTERNATIONAL VALUATION STANDARDS COUNCIL

Valuation Uncertainty

EXPOSURE DRAFT

Comments on this Exposure Draft are invited before 15 February 2013. All replies may be put on public record unless confidentiality is requested by the respondent. Comments may be sent as email attachments to:

CommentLetters@ivsc.org

or by post to IVSC, 41 Moorgate, LONDON EC2R 6PP, United Kingdom.

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Introduction to Exposure Draft

In April 2009, the G20 Declaration on Strengthening the Financial System called for improved standards for valuation uncertainty in the context of fair value accounting. This followed a report submitted by the Financial Stability Forum which noted that valuation methods result in an inevitable measure of uncertainty attaching to the point estimate of valuation. It noted that finding ways to highlight such uncertainty is important to avoid giving management and market participants a false impression of precision.

The IVSC Standards Board commenced a project in response. After consideration of the responses to a Discussion Paper issued in 2010 and further research into the topic it was clear that there are significant differences in the way valuation uncertainty is understood between different sectors and markets, with consequential diversity in the way it is reported. The Board therefore agreed that guidance is required on recognising and highlighting valuation uncertainty.

It was clear from the responses to the Discussion Paper and from some of the continuing debate around proposals issued by other bodies, including the IASB and prudential regulators that there is considerable confusion around what is meant by the term “valuation uncertainty” and also a need for guidance on its identification, measurement and disclosure. This Exposure Draft of a proposed Technical Information Paper (TIP) contains guidance for valuation professionals for valuations for a range of different purposes. While most concerns have been raised in relation to the valuation of financial instruments, the proposed guidance is intended to be applicable to a range of different asset types. The need for valuation users to be alerted to material uncertainty in any valuation on which they rely is not exclusive to financial instruments, but to any investable asset.

The risk weighting of assets that are subject to uncertainty disclosures in order to comply with capital adequacy requirements for financial institutions, known as prudential valuation adjustments, is excluded from the scope of this project.

Questions for Respondents

The IVSC Standards Board invites responses to the following questions. Not all questions need to be answered but to assist analysis of responses received please use the question numbers in this paper to indicate to which question your comments relate. Further comments on any aspect of the Exposure Draft are also welcome.

Notes for respondents:

In order for us to analyse and give due weight to your comments please observe the following:

1. Responses should be made in letter format, where appropriate on the organisation's letter heading.
2. Comments should not be submitted on an edited version of the Exposure Draft.
3. Unless anonymity is requested, all comments received may be displayed on the IVSC website.
4. Comments letters should be sent as an email attachment in either MS Word or an **unlocked** PDF format and no larger than 1mb. All documents will be converted to secured PDF files before being placed on the web site.
5. The e mail should be sent to commentletters@ivsc.org

Questions

1. The proposed TIP defines valuation uncertainty at para 7.

Do you agree with this definition? If not, how do you think that it could be improved?

2. Various prudential regulatory authorities either have or are contemplating introducing disclosure requirements for assets that are deemed to be subject to "valuation uncertainty" and to apply different risk weightings to these in capital adequacy regulations for banks and other financial institutions. The Board has decided to exclude prudential valuation adjustments for valuation uncertainty from the scope of this guidance. The reason is that the IVSC is only concerned with proper valuation practice, not with how valuations are then used by the recipient in complying with other standards, laws or regulations.

Do you agree with the Board's decision to exclude prudential valuation adjustments for valuation uncertainty from the scope of this guidance?

3. The proposed TIP provides guidance on the distinction between valuation uncertainty as defined in the paper and risk, in particular between market uncertainty and market risk. It was clear from comments received on the Discussion Paper and made elsewhere that the concepts are regularly confused. Some believe that the brief explanation of market risk in paras 16 and 17 is not needed given that the focus of the paper is on uncertainty rather than risk. Others consider that the inclusion of a brief illustration of market risk helps readers understand the distinction between this and market uncertainty.

Which of these views do you support?

4. The paper identifies three main sources of valuation uncertainty: market uncertainty, model uncertainty and input uncertainty.

Do you agree that these three categories represent the main sources or causes of valuation uncertainty as defined? If not please explain why, and in particular identify any other source of uncertainty that is not mentioned.

5. The proposed guidance indicates that because market uncertainty arises when the impact of events on value is unknown it is identifiable but not measureable. In contrast, model and input uncertainty can be both observable and measureable.

Do you agree with this position?

6. The requirement in IVS 103 is to disclose any material uncertainty that affects the valuation. Paras 29-39 of the proposed TIP provide guidance on identifying when uncertainty is material, with reference to the requirement in IFRS 13 for valuations for financial reporting and more general guidance where valuations are for other purposes.

Do you find the guidance on materiality to be helpful? Are there any improvements or other considerations that you would suggest be included?

7. Para 42 sets out matters that it is recommended be included in a qualitative disclosure of uncertainty.

Do you agree that this identifies the matters that should normally be included in a disclosure of uncertainty? If not please indicate any additional matters that you consider should be included or any matters mentioned that should be excluded.

8. Para 47 suggests that model and input uncertainty may be more readily measureable for financial instruments than for other types of asset.

Do you have experience of quantitative measures of valuation uncertainty for tangible or intangible assets being disclosed in reports? If so please indicate the types of asset and the techniques used to quantify the uncertainty.

9. Para 51 sets out proposed principles for quantitative measures of uncertainty.

Do you agree with this list? If not please indicate any additional principles that you believe should be included or any listed that you believe are inappropriate.

10. It is proposed that the final TIP will include a few simple illustrative examples of uncertainty disclosures to assist readers understanding how the guidance may be applied in practice. The Board has decided not to develop these until it has received comments on the principles in this draft. The Annexe to this draft contains an indication of situations for which examples are being considered.

Do you agree with the Board's proposal to include illustrative examples of typical disclosures? If so, please indicate the situation for which you consider an example would be most useful.

If you have an example of either a disclosure or measurement of valuation uncertainty that you would like the Board to consider for inclusion in the final paper, please include this with your response.

Exposure Draft

Valuation Uncertainty

Technical Information Papers

The principal objective of an IVSC Technical Information Paper (TIP) is to reduce diversity of practice by identifying commonly accepted processes and procedures and discussing their use. A TIP is designed to be of assistance to professional valuers and informed users of valuations alike. A TIP will do one or more of the following:

- Provide information on the characteristics of different types of assets that are relevant to their value.
- Provide information on appropriate valuation methods and their application.
- Assist the consistent application of an International Valuation Standard (IVS) by dealing with matters identified in the Standard in greater detail.
- Provide information that is helpful to valuation professionals in exercising the judgements they are required to make during the valuation process in specific situations.

A TIP does not:

- Provide valuation training or instruction.
- Direct that a particular approach or method should or should not be used in any specific situation.

The contents of a TIP are not intended to be mandatory. Responsibility for choosing the most appropriate valuation methods is the responsibility of the valuer based on the facts of each valuation task.

The guidance in this paper presumes that the reader is familiar with the International Valuation Standards (IVSs). Of particular relevance to the application of this TIP are the concepts and principles discussed the *IVS Framework*.

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Introduction and Scope

1. This TIP provides guidance on the definition, identification, measurement and disclosure of valuation uncertainty in relation to the preparation and reporting of valuations on the basis of *market value* as defined in the *IVS Framework* or similar market based bases of value such as Fair Value as defined in IFRS 13. The purpose is to assist professional valuers in providing appropriate information on factors that may have given rise to material uncertainty in the reported valuation figure in way that is useful to those who will be relying on the valuation.
2. Uncertainty caused by limitations imposed on the extent of investigations or information on which the valuation is based is not addressed in this TIP. The focus of this paper is on uncertainty that is unavoidable regardless of the terms under which the assignment is undertaken. The effect of limiting conditions or restrictions that affect the investigations undertaken in preparing a valuation estimate are outside the definition of valuation uncertainty in this TIP, but should be separately disclosed under IVS 103 Reporting.
3. Adjustments to reflect “valuation uncertainty” that are required to a financial institution’s capital by prudential regulators under capital adequacy regulations are outside the scope of this paper.
4. The guidance in this TIP is intended to assist in the preparation and reporting of all valuations where uncertainty needs to be disclosed to anyone who may rely on the valuation. While this includes valuations prepared for financial reporting the guidance is not confined to valuations for this purpose. Although reference is made to some of the current disclosure requirements that relate to valuation uncertainty in the International Financial Reporting Standards, other financial reporting standards may have different requirements.

Definitions

5. The following definitions apply in the context of this TIP. Similar words and terms may have alternative meanings in a different context. The IVSC's International Glossary of Valuation Terms provides a comprehensive list of defined words and terms commonly used in valuation, together with any alternative meanings.

IFRS Fair Value ¹	The price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date.
Market Risk	The risk that the value of an asset will fluctuate in the future because of changes in market conditions.
Market Value	The estimated amount for which an asset or liability should exchange on the date of valuation between a willing buyer and a willing seller in an arm's length transaction after proper marketing wherein the parties had each acted knowledgeably, prudently, and without compulsion.
Liquidity Risk	The risk that an entity will be unable to obtain cash or a cash equivalent for an asset on a specific date.
Uncertainty Risk	The risk of a loss from a difference between the valuation and the price in a simultaneous sale of the asset or liability.
Value at Risk	An estimate of the expected maximum loss for an asset or portfolio of assets at a given confidence level and interval based on analysis of historic price trends, volatilities and correlations.
Valuation Uncertainty	The possibility that the estimated value may differ from the price that could be obtained in a transfer of the same asset or liability taking place at the same time under the same terms and within the same market environment.

The Nature of Valuation Uncertainty

6. A valuation is not a fact; it is an estimate of the most probable of a range of possible outcomes based on the assumptions made in the valuation process. Market valuations are estimates of the most probable price that would be paid in a transaction on the valuation date. However, even where assets are identical and exchanged in contemporaneous transactions, fluctuations in the prices agreed between different transactions can often be observed. These fluctuations can be caused by factors such as differences in the objectives, knowledge or motivation of the parties. Consequently, an element of uncertainty is inherent in most market valuations as there is rarely a single price with which the valuation can be compared.
7. Valuation uncertainty is defined as:
- The possibility that the estimated value may differ from the price that could be obtained in a transfer of the same asset or liability² taking place at the same time under the same terms and within the same market environment.*

¹ © IFRS Foundation – IFRS 13

8. In some cases the degree of uncertainty is clearly negligible, for example where the valuation is made by reference to concurrent prices for identical assets in the same market, as in the case of publicly listed and frequently traded securities. In others, uncertainty may be immaterial in the context of the market for a particular asset or the valuation assignment because it falls within the range that would be expected, and accepted, by most market participants. Such uncertainty should not be a source of concern to users or need specific disclosure by the valuer.
9. Valuation uncertainty should be distinguished from uncertainty risk. The possibility that the estimated value may differ from the price in an actual transaction deemed to be taking place simultaneously means that the value may be higher or lower than that price. An owner of the asset is exposed to a risk of loss (uncertainty risk) but also the benefit of a gain if the price is higher than the valuation.
10. This paper examines the identification of material valuation uncertainty, discusses its common causes, when and how it may be quantified and the types of disclosure that may be appropriate.

Causes of Uncertainty

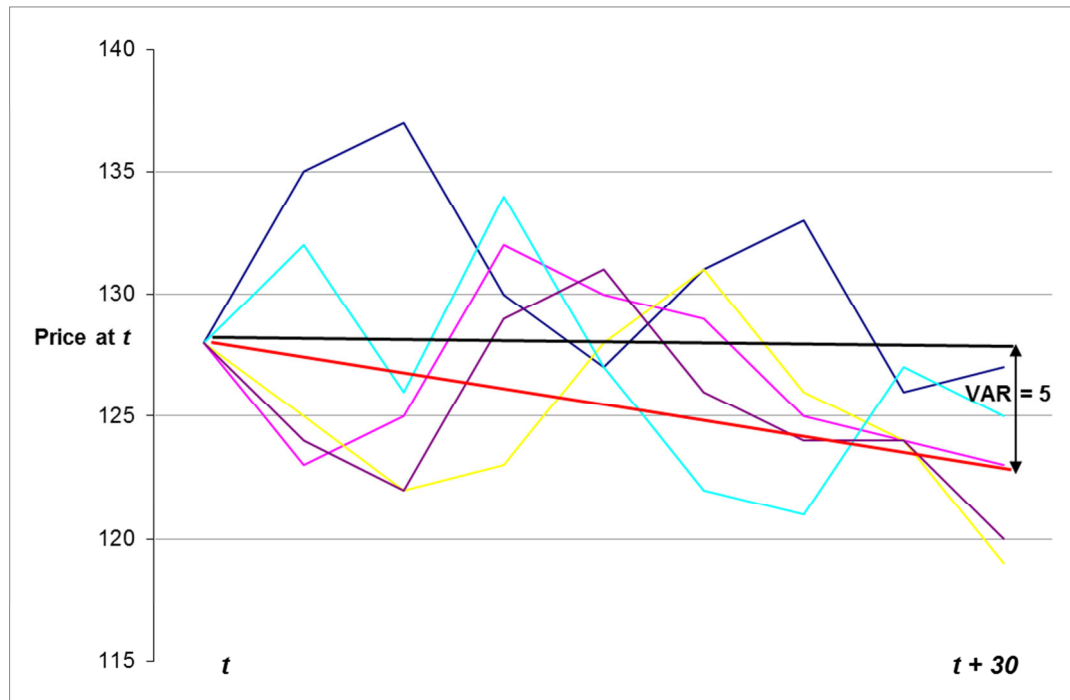
11. Material uncertainty can be caused by various factors. These are divided into the following categories in this TIP, market uncertainty, model uncertainty and input uncertainty. Model and input uncertainty arise from the valuation process, are closely related and may be measureable. Market uncertainty arises because of events external from the valuation process and is not normally measureable.

Market Uncertainty:

12. Market uncertainty arises when a market is disrupted at the valuation date by current or very recent events such as sudden economic or political crises. The disruption can manifest itself in a number of ways for example either through panic buying or selling or by a loss of liquidity due to a disinclination by market participants to trade. An outbreak of sudden trading activity in response to a crisis may cause rapid price changes that are not necessarily representative of those that would be agreed between parties acting “knowledgeably and prudently”. Conversely, a loss of liquidity will mean fewer contemporaneous or relevant recent transactions which may impact on the reliability of the valuation.
13. Events causing market uncertainty may be macroeconomic, eg the terrorist attacks of September 11th 2001 or the Lehman Brothers insolvency in 2008, or microeconomic, eg an unexpected change in the law disrupting a sector of the market or disruption to the supply chain of an industry.
14. Such events create valuation uncertainty, because the only inputs and metrics available for the valuation are likely to relate to the market before the event occurred and the impact of the event on prices will not be known until the market has stabilised.
15. Market uncertainty should not be confused with market risk. Market risk is the risk that an asset may lose value over time due to changes in market conditions that occur after the valuation date. The possibility of market conditions changing in the future and the potential for the price of an asset to be affected by those changes is something that is considered by market participants when negotiating a transaction and will be reflected in market prices.

² This TIP applies to assets and liabilities, but to improve legibility the words asset or assets are deemed to include liabilities except where it is expressly stated or clear from the context that liabilities are excluded.

16. Market risk can be measured by calculating, for example, the value at risk. The graph below gives a simple example of a publicly traded blue chip stock listed on more than one exchange. It can be observed that the market price of the stock fluctuates over time. The value at risk for a shareholder for one month is the maximum expected loss under a certain confidence interval due to changes in market price of the stock during that month.



The red line shows the value at risk (VaR) for one month associated with a blue chip stock, based on the mean of observed price fluctuations in the stock over previous thirty day periods represented by the other lines. There is negligible uncertainty attaching to a valuation of 128 at time "t" because all contemporaneous transactions at that time are either at this price or very close to it, but the value at risk over the next 30 days is about 5.

17. Although there may be many fluctuations in price over a given period, because under normal market conditions blue chip shares are actively traded there would be hardly any market or valuation uncertainty on a given date. The stock is quoted on public exchanges and traded in high volumes on a daily basis. The risk of the actual exchange price significantly differing from a near contemporaneous quotation or valuation is close to zero.
18. Market uncertainty and market risk are therefore independent of each other. A valuation of a highly liquid quoted stock has little uncertainty but can still reflect high market risk. The valuation of an illiquid fixed income bond may be uncertain due to lack of recent evidence, but may reflect low market risk.
19. In contrast to market risk, market uncertainty is not measurable because the uncertainty arises from the inability to observe the impact of the event on prices.

Model Uncertainty

20. Model uncertainty arises from characteristics of either the valuation model, or method, used. For certain asset types, more than one method may be customarily used to estimate value. However, those models may not always produce the same outcome and therefore the selection of the most appropriate method may of itself be a source of uncertainty.
21. IVS 102 *Implementation*, para 7 provides that where more than one valuation approach or method is used the resulting indications of value should be analysed and reconciled to reach a valuation conclusion. However, this is a heuristic process which will enable the valuer to understand the reasons why the methods produce different results. It may not lead to a mathematical reconciliation of the results, and therefore the valuer will need to justify which method should be given greater weight in arriving at the valuation conclusion. Where there is no clear reason to prefer one method over another but each produces a different result model uncertainty arises.
22. Model uncertainty can be measured by observing the effect on the valuation of using different models or methods.

Input uncertainty

23. Input uncertainty arises where there are a number of equally reasonable or feasible inputs or assumptions that can be used from the degree of veracity that can be attached to the data inputs used in the valuation and their impact on the outcome. Examples of input uncertainty include:
 - Where the input is taken from consensus data or a composite of market data, there will normally be a range between which the market value can fluctuate.
 - Where inputs are based on historic data, the assumptions or methods used to adjust the data to market conditions at the valuation date can be a source of uncertainty.
 - Where inputs are estimated or extrapolated from directly observable prices, uncertainty can result from the adjustments made for differences in the assets or the transaction, particularly where there is little or no objective evidence for the adjustments.
24. Input uncertainty can be measured by the effect on the valuation of using reasonably possible alternative inputs.
25. The valuation method used may adjust for input uncertainty. For example, in a discounted cash flow model the cash flow inputs are based on current expectations of future performance and are therefore uncertain. However, market participants' views of the potential risk or reward implied by the expected cash flows differing from those that actually occur in the future should be reflected in the discount rate applied. Consequently, inputs based on current expectations of future performance are not automatically a source of material valuation uncertainty.
26. In some situations the effect of input uncertainty may be ameliorated by the use of statistical sampling techniques to analyse and weight the range of available data before it is applied in the valuation model. However, input uncertainty can also arise where reduced liquidity or reduced market activity result in a reduction in the relevant data available to provide empirical support for valuations.

Causes not exclusive

27. It is important to note that the causes of valuation uncertainty discussed above are not mutually exclusive. For example, there is a link between model and input uncertainty as different models may use different inputs that are subject to different degrees of uncertainty. Also, an asset may be affected simultaneously by market, input and model uncertainty.
28. Interdependence and correlation between uncertainty factors are therefore likely to exist and account should be taken of this as part of the valuation process. The question of measurement and reporting of uncertainty is addressed in later sections of this paper.

Materiality

29. IVS 103 *Reporting*, para 2 requires the valuation report to set out a clear and accurate description of any material uncertainty that directly affects the valuation. As indicated in para 6 most valuations contain an element of uncertainty but it is only to be disclosed when it is "material" and has a direct effect on the valuation. A requirement to discuss and disclose uncertainty in all cases would over complicate the reporting of many valuations, and potentially raise unwarranted concern as to the reliability of the valuation opinion, which would not be helpful to users.
30. It is therefore necessary to consider whether uncertainty is material. Materiality should be considered from two aspects; first whether the impact on the valuation figure is significant and second whether it is of concern to a user of the valuation having regard to the purpose for which it is required.
31. In considering whether the impact of the uncertainty is significant, regard should be had to the impact on the overall potential profits or risk of loss to which either the owner of the asset or a third party relying on the valuation is exposed as a result of the uncertainty. This cannot be expressed in absolute terms but will vary depending on the purpose of the valuation and the nature of the asset.
32. Even if it is judged that the uncertainty could have a significant effect on the reported valuation, whether this is a matter of relevance to a user will vary depending factors such as:
 - whether the valuation is required for internal purposes by the commissioning party or whether it will be disclosed to and relied upon by third parties. The threshold of materiality is likely to be lower if the valuation is to be relied on by third parties;
 - whether it is the only asset in which the users of the valuation are interested or whether it is part of a portfolio in which the other assets are not affected;
 - whether the cause of the uncertainty was known to the commissioning party or a third party relying on it when the valuation was commissioned
 - whether the effect of the uncertainty could expose the commissioning party or a third party relying on the valuation to significant risk of loss.
33. When a valuation is being prepared for financial reporting, the relevant accounting standard often stipulates when an uncertainty disclosure is required. For example IFRS 13 *Fair Value Measurements* has extensive disclosure requirements. The most relevant to valuation uncertainty, although the term is not actually used, are in section 93:

IFRS 13 93 (h)

for recurring fair value measurements categorised within Level 3 of the fair value hierarchy:

- (i) for all such measurements, a narrative description of the sensitivity of the fair value measurement to changes in unobservable inputs if a change in those inputs to a different amount might result in a significantly higher or lower fair value measurement. If there are interrelationships between those inputs and other unobservable inputs used in the fair value measurement, an entity shall also provide a description of those interrelationships and of how they might magnify or mitigate the effect of changes in the unobservable inputs on the fair value measurement. To comply with that disclosure requirement, the narrative description of the sensitivity to changes in unobservable inputs shall include, at a minimum, the unobservable inputs disclosed when complying with (d).
- (ii) for financial assets and financial liabilities, if changing one or more of the unobservable inputs to reflect reasonably possible alternative assumptions would change fair value significantly, an entity shall state that fact and disclose the effect of those changes. The entity shall disclose how the effect of a change to reflect a reasonably possible alternative assumption was calculated. For that purpose, significance shall be judged with respect to profit or loss, and total assets or total liabilities, or, when changes in fair value are recognised in other comprehensive income, total equity.

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- 34. IFRS 13 sets out a “fair value hierarchy” of Levels 1, 2 and 3, see G4 and G5 of the Application Guidance to IVS 300. It will be noted that the disclosures required by IFRS 13 section 93 only apply where Level 3 inputs are used. These are “unobservable inputs” which are defined in the IFRS as inputs for which market data are not available and that are developed using the best information available about the assumptions that market participants would use when pricing the asset or liability.
- 35. Where Level 3 inputs have been used, the IFRS only requires a narrative description of the sensitivity of the valuation to changes in these inputs if this would result in a significantly higher or lower figure.
- 36. For financial instruments slightly different criteria need to be considered. Firstly the alternative inputs considered must be “reasonably possible”. If it is decided that these alternatives are reasonably possible and that they would result in a significant change to the value then it is necessary to calculate the effect of that alternative input. Significance is judged by reference to total assets and liabilities or to total equity.
- 37. For valuation purposes other than financial reporting under IFRS it is important to recognise that valuation uncertainty can and does affect valuations that use inputs that would be classified in either Level 1 or Level 2 in the IFRS 13 hierarchy and the fact that an explicit disclosure is not required for financial reporting does not mean that a disclosure may not be required to comply with IVS 3.
- 38. Whether a potential alternative input is “reasonably possible” can be useful concept to help determine whether valuation uncertainty is material for purposes other than valuations under IFRS 13. The term is not defined in IFRS 13 and no specific quantitative probability level is implied. What is, or is not, reasonably possible will depend on the facts of each situation and requires judgement. From a valuation perspective a key consideration would be the distribution pattern and spread of potential alternative inputs. If the data follows a normal pattern of distribution, or bell curve, data in the tails could be usually be safely disregarded as falling

outside the range of being reasonably possible. However, other distribution patterns may mean that greater weight may need to be given to certain outliers. .

39. Although model or input uncertainty is less likely to arise where the inputs would fall within Levels 1 or 2 if being undertaken for financial reporting under IFRS, any of the levels in the IFRS hierarchy could be affected by market uncertainty. For example a listed blue chip stock may still be affected by a sudden decrease in trading activity and abnormal levels of price volatility immediately following a market shock.

Nature of Disclosure

40. If valuation uncertainty is deemed to be material the next question to be addressed is whether the disclosure to it in the valuation report should be only qualitative, ie descriptive, or whether a quantitative, ie numeric, indication of the uncertainty should also be provided.
41. The requirement in IVS 3 is to provide “a clear and accurate description” of any material uncertainty. This indicates that a qualitative description should always be provided for all valuations for whatever purpose where any identified uncertainty meets the materiality criteria. This requirement is also consistent with IFRS 13. As can be seen from the extract above a narrative description of the sensitivity of the fair value measurement to changes in the inputs must be provided, for all valuations which meet the criteria listed.
42. A qualitative description of valuation uncertainty should explain the source of the uncertainty, the effect that this has on the market, the valuation process or both. In the case of market uncertainty it may be possible to comment on any consensus view on how long it may be until the effect of the event can be assimilated and stability returns to the market. In the case of model or input uncertainty a description of the reason why the selected models or inputs were used can be provided
43. The question of whether a numeric indication of the effect of the uncertainty should be also provided is more problematic. Valuation uncertainty often arises because of either a shortage or lack of empirical data inputs to support the valuation. Where this is the case, providing a quantitative statement of uncertainty may be unrealistic, as if the data needed to quantify the uncertainty is available then it could have been used to reduce the uncertainty in the valuation process.
44. A related potential problem in providing a quantitative measure of uncertainty is to avoid implying a false precision. While it may be possible to provide a quantitative measure by using an alternative input, by definition that input must be one considered to be less probable or relevant than the one used in the reported valuation. For this reason it is always appropriate to provide a verbal explanation of the uncertainty and any quantitative illustration of the possible effect of that uncertainty. .
45. A simplistic expression of valuation uncertainty might be to provide a range within which the value is considered to fall. However, this is not recommended for the following reasons:
- For many valuation purposes a single valuation figure is required and a range would not be acceptable.
 - Determining the extremes of the range may also be unrealistic because the very factor that created the uncertainty in the first place is likely to mean that previously observed price fluctuations will no longer be relevant.
 - Users may assume that an equal probability attaches to any outcome within the range when this might not be the case.

- Users may assume that there is no possibility of a valuation falling outside of the indicated range.

Measuring Uncertainty

46. While caution is required in presenting any numeric indication of uncertainty, there are circumstances where this can be reasonably provided and be useful to a user of the valuation. As discussed in paras 23 -25 model and input uncertainty may be measureable by observing the effect on the valuation of using either an alternative model or input.
47. The value of financial instruments is dependent upon the amount, timing and security of future cash flows between the counter parties. Variations in these mainly numeric inputs over a fixed time horizon are more readily measureable than those that might be involved in the valuation of other types of tangible or intangible assets held for an indefinite period, such as the comparative quality or utility of the asset or its potential for an alternative use.
48. Where the value of a financial instrument is uncertain because there is no market data available for an identical or similar instrument it is necessary to make an estimate of certain inputs into the valuation based on the assumptions that a market participant might make. In these circumstances it is more likely that two or more alternative figures that could be reasonably be chosen for a key input into the calculation. Where this occurs it is recommended that the reported valuation is based on the most likely of these outcomes, but a sensitivity analysis is provided showing the effect of the range possible outcomes on the reported value.
49. The principle of quantifying uncertainty by the use of a sensitivity analysis can also be applied to assets other than financial instruments where there were a number of reasonably possible alternative numeric inputs that could have been selected on the valuation date.
50. To establish what might be considered a reasonably possible alternative input, statistical techniques may be used, although if there is market uncertainty at the valuation date the relevance of input ranges based on previous fluctuations may be of limited relevance.
51. If a quantitative measure of valuation uncertainty is to be provided, the following principles should be considered and applied as appropriate:
 - A quantitative measure should always be accompanied with a narrative describing the cause and nature of the uncertainty. A purely numeric illustration will only confirm uncertainty, not explain it. There is no useful purpose served by providing such a quantitative expression of uncertainty if this will not result in a better understanding of the valuation by the user.
 - Quantifying valuation uncertainty does not involve forecasting a worst case scenario. The objective is not to stress test a valuation to an extreme case. Any test of valuation uncertainty should address the impact on the reported value of reasonable and likely alternative assumptions. When choosing alternative assumptions to measure uncertainty, selection needs to be made among possibilities that are not located in the tail of the distributions (where events are very unlikely to happen) but rather in their central areas (where events are likely to occur).
 - The objective of any uncertainty analysis is not to provide a forecast of possible fluctuations in the reported value at future dates but to provide information about the variability of fair value measurement at the specific valuation date.

- When quantifying the impact of uncertainty the interdependence or correlation between significant inputs needs to be considered when it is practical to do so. Incorporating correlation analysis is technically and operationally challenging and potentially costly; but an analysis that does not consider interdependence provides less relevant information to users. When uncertainty is measured without proper correlation of interdependent inputs the degree of uncertainty may be overestimated.
 - When measuring a portfolio of financial instruments, interdependence and potential netting effects across products should be considered.. However, such analysis should complement, rather than be a substitute for, a disaggregated asset by asset uncertainty measurement. The reason is that potential netting effects across assets are only relevant when a transaction of all the products of the portfolio takes place at the same time.
52. Illustrative examples of qualitative and quantitative disclosures are included in the Appendix to this TIP.

ILLUSTRATIVE EXAMPLES

It is proposed to include a few illustrative examples of qualitative and quantitative valuation uncertainty disclosures in the final TIP.

It is proposed to develop the following:

- 1) Sample qualitative disclosures for two or three different scenarios and asset types.
- 2) Sample sensitivity analyses for two or three scenarios where quantitative disclosures are appropriate because of input uncertainty.
- 3) Sample disclosures where model uncertainty is identified.

It is not proposed to discuss different valuation models or methods as these are outside the scope of this project. Neither is it proposed to examine statistical or mathematical models that may be used in the valuation process to calculate or evaluate different inputs.