Project **Financial Instruments (Replacement of IAS 39) – Hedge Accounting**

Topic **Hedge Effectiveness – Methods**

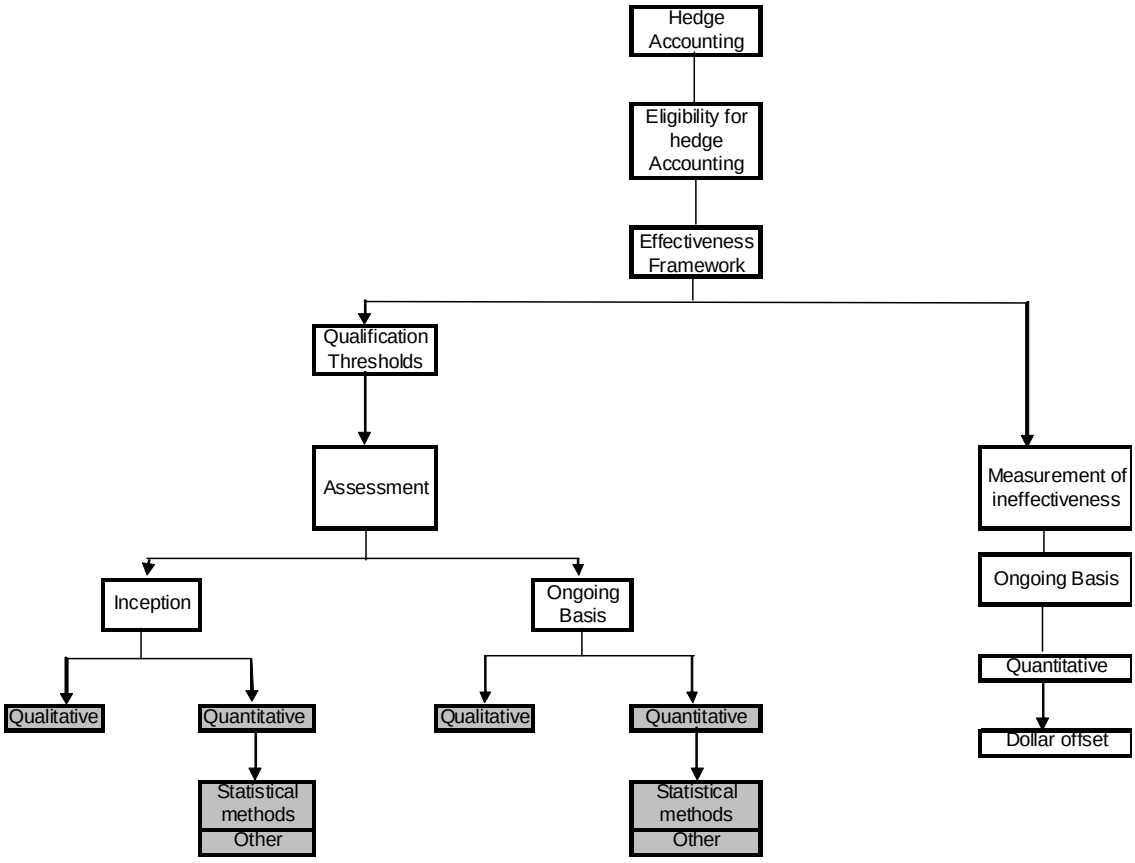
Introduction

Background

1. This paper is one in a series of papers that will address the specific issues regarding effectiveness assessment (ie the 'effectiveness test').

Purpose of the paper

2. The purpose of this paper is to discuss whether the new hedge accounting model should provide any guidance on specific methods for effectiveness assessment. The paper has the following structure:
   (a) Overview of the issue.
   (b) Staff analysis.
   (c) Staff recommendation and question to the Board.
3. This paper aims to address whether the new hedge accounting model should prescribe any methods for effectiveness assessment. The paper outlines some of the methods available to preparers when performing effectiveness assessment. It presents an analysis of their advantages and disadvantages and provides the staff views on each.
4. The paper addresses the methods used for effectiveness assessment that could be used both at inception and on an ongoing basis as described in the diagram below. It contains one question to the Board.



The issue

5. Should the new hedge accounting model prescribe any methods for effectiveness assessment? If yes, which ones?

Staff analysis

6. The staff believes that the main objective to be achieved when selecting a method for assessing hedge effectiveness is to identify the one that provides more relevant information to support an expectation of the behaviour of the hedging relationship during its term.

7. The expected behaviour of the hedging relationship during its term should be the main criterion to qualify a hedging relationship as effective in the context of hedge accounting.

8. There are different methods for analysing the behaviour of a hedging relationship during its term. For the purpose of this paper the staff will analyse qualitative and quantitative methods.

Qualitative methods

9. Qualitative methods rely on the comparison of the terms of the hedged item and hedging instrument to perform the effectiveness assessment. For example, the commonly termed 'critical terms match' approach or the 'change in variable cash flow' approach can be considered qualitative assessment methods.

10. Under these methods, if the critical terms of the hedged item and hedging instrument match or are closely aligned, then the hedging relationship is expected to be effective during its term.

11. Qualitative methods are easy to apply and work well with non-complex hedging relationships. They avoid the burden of a fully quantitative test for relationships where all the critical terms are so closely aligned that professional judgement can be applied without a need for quantitative analysis.

12. However, qualitative methods are less effective for analysing the behaviour of hedging relationships that involve a significant degree of potential ineffectiveness resulting from non-matching of the terms of the hedged item and the hedging instrument. The level of uncertainty regarding the extent of future offset is difficult to understand using a qualitative approach.

13. If the degree of uncertainty is such that a qualitative analysis of critical terms is not sufficient, quantitative methods have to be used to assess the effectiveness of the hedges. These are described in the section below.

Quantitative Methods

14. Quantitative methods encompass a wide spectrum of tools and techniques. The decision is a matter of facts and circumstances that usually considers:

    (a) The complexity of the hedge.

(b) The availability of data on the risks of the hedged item and hedging instrument.

(c) The level of uncertainty of offset in the hedging relationship.

15. Risk management often uses quantitative methods for complex hedges and hence is a useful resource for financial reporting purposes.

16. Quantitative methods include:

(a) percentage-based methods such as the 'dollar offset' method; and

(b) statistical methods such as regression analysis.

Percentage-based methods

17. Percentage-based methods like the 'dollar-offset' compare the monetary change in the fair value of the hedging instrument with the monetary change in the fair value of the hedged item. This fraction gives the level of effectiveness of the hedge. This method has been largely used under the current model because it is also used for quantifying ineffectiveness that is recognised in profit or loss.

18. Despite its simplicity, this method has several limitations, particularly the fact that it is extremely sensitive to small changes in the fair value of the hedged item and the hedging instrument that do *not exactly* offset each other. This problem, commonly known as 'small numbers problem', creates the issue that insignificant changes result in the hedging relationship failing the threshold defined for effectiveness testing.

19. Other limitations include:

(a) the fact that effectiveness assessment only covers the duration of the hedging relationship and, therefore, other data outside the term of the hedge is not considered. This data might be useful to understand the relationship between variables and is only captured when statistical methods such as regression analysis are applied.

(b) the fact that depending on whether the assessment is made on a cumulative basis or on a period-by-period basis may determine that the

hedging relationship might fail the effectiveness test for reasons with little economic meaning. For example: if an already existing interest rate swap is used as a hedging instrument (ie a 'late hedge') in a hedge of interest rate risk the hedging relationship will fail the effectiveness test on a cumulative basis at least in the last period due to the non-zero fair value of the derivative at inception. Similarly, if hedge effectiveness is assessed on a period-by-period basis, effectiveness becomes very sensitive to short term fluctuations in the variables within the hedging relationship.

20. The limitations outlined above illustrate the consequences of the reliance of percentage-based methods on quantitative thresholds for hedge effectiveness testing. This use of thresholds does not facilitate the application of the general IFRS guidance on materiality (ie impact on the financial statements) in relation to whether or not hedge accounting is achieved. This precludes the application of professional judgement.

21. Percentage-based methods will ultimately bring effectiveness testing back to the reliance on arbitrary bright-lines rather than on the explanatory power of the variables involved in the hedging relationship. At the same time, defining a range or an arbitrary bright-line will make the link to statistical parameters difficult to explain as statistical parameters consider a wider set of data when determining the relationship between variables.

22. Percentage-based methods are also difficult to understand by users because the outcome (ie achieving hedge accounting or not) does not provide a clear link to the performance of risk management or changes in the relevant risk variables. Hence, users often struggle to see how the outcome has an economic meaning.

Statistical Methods

23. Statistical methods predict the behaviour of a hedging relationship based on the explanatory power of one variable(s) as a function of other variable(s).

24. They are usually used to predict the expected behaviour of complex hedging relationships.

25. Statistical methods, although more complex and more difficult to apply because of potential lack of data, avoid many issues raised by percentage-based methods. They aim to explain the relationship between variables, rather than try to simply compare percentages calculated based on the change in the fair value of the hedged item and hedging instrument.

26. Because statistical methods are more comprehensive and rely on the relationship between variables, they are not only a better decision-making tool but also provide better information to users. This information, complemented with adequate disclosures on the assumptions used by risk management provides a better link between accounting for hedging activities and risk management (ie decision making).

27. The most commonly used statistical method to explain the relationship between two variables is regression analysis. Statistical methods are not limited to regression . Entities may also use other methods, such as Panel Data, Monte Carlo Simulation, and Auto-Regressive Models etc. These should be used in consideration of the complexity of the hedges and availability of data. For the purpose of this paper, the main features of regression analysis are described in Appendix A.

Conclusion

Percentage based methods

28. Percentage-based methods are no more than a quantitative representation of the critical terms match. Hence, the information provided by these methods in the context of effectiveness assessment is limited and has little economic meaning.

29. The use of these methods in isolation does not provide useful information to users.

30. As a result the staff believes that the use of percentage-based methods in the context of quantitative effectiveness assessment is not appropriate.

Statistical Methods

31. Statistical methods are a more robust alternative for assessing hedge effectiveness as they explain relationships between variables involved in the hedging relationship.

32. Based on the effectiveness testing model being proposed, quantitative assessment will be required for primarily complex hedging relationships (refer to papers 7A and 7B). The relationship between variables is usually one of the fundamental decision making criteria and therefore a statistical method is a more powerful way of looking at the predicted behaviour of the hedging relationship during its term.

33. Based on the above the staff believes the Board has at least three alternatives:

    (a) **Alternative 1 –** Do not prescribe any method and hence allow percentage-based methods for effectiveness assessment;

    (b) **Alternative 2 –** Do not prescribe any method but specifically exclude percentage-based methods from the *quantitative* effectiveness assessment. Information used for decision-making purposes will be the major source of data for effectiveness assessment;

    (c) **Alternative 3 –** Prescribe statistical methods as the default methodology for effectiveness assessment. A limited exception will be permitted in the absence of data whereby entities shall rely on the information for decision-making purposes as a major source of data for qualifying the hedge as an effective hedge.

Implications for hedge accounting

34. Removing percentage-based methods from the quantitative effectiveness assessment will eliminate the issues currently faced by preparers and the difficulty in understanding the hedge accounting outcome by users. This option will however require entities with hedging relationships that are subject to quantitative assessment to perform more complex effectiveness assessments,

particularly statistical analysis. This model will also place reliance on the information produced for decision making purposes when data is not available for performing statistical analysis.

Staff recommendation and question to the Board

35. The staff recommends **Alternative 2.**

Rationale for the staff recommendation

36. The staff believes that by not prescribing any method for assessing hedge effectiveness the link between accounting and risk management will be strengthened. Additionally, the basis for effectiveness assessment will normally be the information used for decision-making purposes. At the same time, by excluding percentage-based methods from the *quantitative* effectiveness assessment, the arbitrary lines will be removed and users will get more relevant information about the risk management and performance of the hedging activities.

Question 1 – Quantitative methods of assessing hedge effectiveness
Does the Board agree with the staff recommendation as outlined in paragraph 35? If the Board disagrees with the staff recommendation, what would the Board prefer instead, and why?

Appendix A

Regression Analysis – Overview.

A1. Linear regression is a method that aims to identify and describe the relationship between variables. This method assumes that there is a linear relationship between the variables and aims to identify the best fit using the least squares analysis to minimise the total squared distances of the points plotted on the line.

A2. The equation of a regression analysis is represented by the formula:

(a) $Y= \alpha + \beta X + \varepsilon$, where:

(b) Y is the dependent variable, X is the independent variable, α is the intercept, β is the slope of the regression line and ε is the residual or error term.

A3. In the context of regression X is normally defined as the change in fair value of the hedged item and Y as the change in fair value of the hedging instrument.

A4. The relationship between the variables is given by the coefficient of determination represented by the R^2. R^2 is the percentage of the variance in Y that is explained by X.

A5. The intercept point is the where the regression line crosses the Y axis. When the regression has a non-zero intercept, this implies that Y will change even when there is no change in X.

A6. To avoid this issue, the interception point can be forced to be zero. This reduces the R^2 value and may change the slope of the regression line.

A7. When performing regression analysis there are a number of issues to be considered particularly:

(a) Regression analysis is a technique based on a sample rather than on a population. The sample is represented by data points and the aim of the method is to provide a 'proxy' for the true population parameters.

(b) Regression analysis is mostly driven by the number of data points and their consistency.

(c) Regression considers a wider range of data that often extend beyond the period covered by the hedge. This additional set of data might be useful if it increases consistency or provides a wider basis. However, entities need to determine the appropriate extent of the time series used in each particular circumstance.

(d) 'Accidental' statistical relationship should not be used as an argument to qualify hedges as effective hedges. Regression analysis is appropriate for assessing hedge effectiveness if there is a genuine economic relationship between the risks.

(e) In the absence of data to apply a statistical method, preparers should use the assessment made internally for entering into the hedging relationship. For accounting purposes this should respect the principles outlined in paper 7B, ie:

   (i) The hypothesis of accidental offsetting has been rejected;

   (ii) Use an alternative method (eg Monte Carlo simulation) to establish data points to estimate the effectiveness of the hedge.