

Project	Financial Instruments (Replacement of IAS 39) – Hedge Accounting
Topic	Hedge Effectiveness – Relationship between methods and qualifying criteria for effectiveness assessment

Introduction

Background

1. This paper is a follow-up paper that aims to address the concerns raised by the Board during the July 2010 meeting in relation to the hedge effectiveness criterion to qualify for hedge accounting. The Board discussed whether that criterion should use a ‘higher hurdle’ than demonstrating other than accidental offset in conjunction with conformance to an entity’s risk management.¹
2. This paper will not ask any questions or provide any staff recommendation. It aims to provide the Board with a more comprehensive overview of the issues discussed at the last meeting. This paper should be read in conjunction with agenda paper 2, which includes a diagram where the staff contrasts the proposed approach with its view of the suggestions made by the Board in July. Decisions will be asked at a future meeting.
3. The paper has an introductory section outlining the staff’s view on the issues discussed at the last meeting. Appendix A of this paper outlines three examples illustrating some of the main issues arising if some of the Board’s suggestions are incorporated into the effectiveness assessment model.

¹ These criteria were used in agenda paper 7A of the July 2010 Board meeting.

This paper has been prepared by the technical staff of the IFRS Foundation for discussion at a public meeting of the IASB.

The views expressed in this paper are those of the staff preparing the paper. They do not purport to represent the views of any individual members of the IASB.

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Hedge effectiveness approach proposed by staff at the previous meeting

4. The diagram in paper 1 sets out the approaches discussed at the July 2010 Board meeting. Those were the approach in the series of staff papers and another approach that evolved in the Board's discussion.
5. The approach proposed by the staff at that meeting is based on an effectiveness assessment that:
 - (a) aims to eliminate accidental offsetting from the scope of hedge accounting; and
 - (b) links effectiveness testing to the entity's risk management.
6. These aspects are two *cumulative* criteria that constitute the effectiveness test. The first requirement that offsetting be other than accidental has the same function as a definition. It determines what type of relationships between instruments and exposures fall under the accounting notion of a *hedging* relationship. Since the Board emphasised it wants to build hedge accounting around the notion of 'offset' it follows from logical deduction that offsetting must be a characteristic of the hedging relationship and hence that offsetting cannot simply be accidental. However, this requirement does *not* set a particular *target level* for hedge effectiveness.
7. The second requirement regarding the link to risk management addresses the level of hedge effectiveness that a hedge would be expected to achieve. This is based on the rationale that rather than using a separate, merely accounting related target level of effectiveness like IAS 39 today, drawing on risk management avoids the disconnect that has resulted in hedge accounting developing into a predominantly accounting driven (often artificial) exercise – that has little or nothing to do with the risk management approach of an entity.
8. This also reflects that there is not a meaningful single target level for all types of hedging relationships and entities. Hence, setting a single 'one size fits all' threshold for all hedging relationships will re-create the problems that exist with today's effectiveness testing approach.

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9. The approach proposed by the staff at the July meeting uses information produced internally by risk management for the purpose of decision making (ie when to hedge, what to hedge and how to hedge) and monitoring of the ongoing effectiveness as the main source of data for effectiveness assessment. The approach distinguishes between complex and non-complex hedges.
10. For complex hedges quantitative methods are required for effectiveness testing (in order to ensure that offsetting is a characteristic of the hedging relationship and is not simply accidental). The approach would however exclude percentage-based methods as an appropriate quantitative method (and instead could only be used as the substantiation of a qualitative method).
11. If a quantitative test is required but the entity does not use a quantitative method for its risk management purposes the entity would have to perform a quantitative test for accounting purposes (back-up test) in order for the complex hedge to qualify for hedge accounting.

Previous Board Discussion

12. Following the presentation of the approach described above, some Board members felt that the approach did not contain enough discipline and asked the staff to consider a higher effectiveness threshold to qualify hedging relationships for hedge accounting. For these members, risk management aims to put in place highly effective hedges and these should be the ones within the scope of hedge accounting.
13. Some Board members also acknowledged that sometimes hedging relationships in their life may not achieve levels of offsetting consistent with what is the perception of a highly effective threshold. In these situations, risk management should be able to justify the reasons why such hedges do not achieve such a 'highly effective' threshold. For these Board members, if the justification is appropriate hedge accounting would (be allowed to) continue.
14. In relation to the issue outlined in paragraph 13, some Board members expressed the preference for an approach that would allow entities to change the assessment method during the hedging relationship provided such change would produce a more robust answer in the light of the variables involved in the

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hedging relationship. This view reflects that these Board members believed that if initially percentage-based methods are sufficient to demonstrate that the hedging relationship is expected to be effective then no additional analysis is necessary unless and until that type of method fails.

15. The Board expressed its preference for an approach that does not specify any *methods* for assessing effectiveness.
16. The Board preferred an approach that would be based on an analysis of the factors that cause a hedging relationship not to be fully effective. For example, a qualitative assessment of hedge effectiveness should be applied to hedging relationships where all the critical terms match or where the difference in the non-matched terms is negligible and can be easily identified and tracked. If the entity later encountered a significant degree of ineffectiveness, the factors for that development would have to be analysed to ascertain whether the hedge would still achieve the risk management objective.

Purpose of the paper

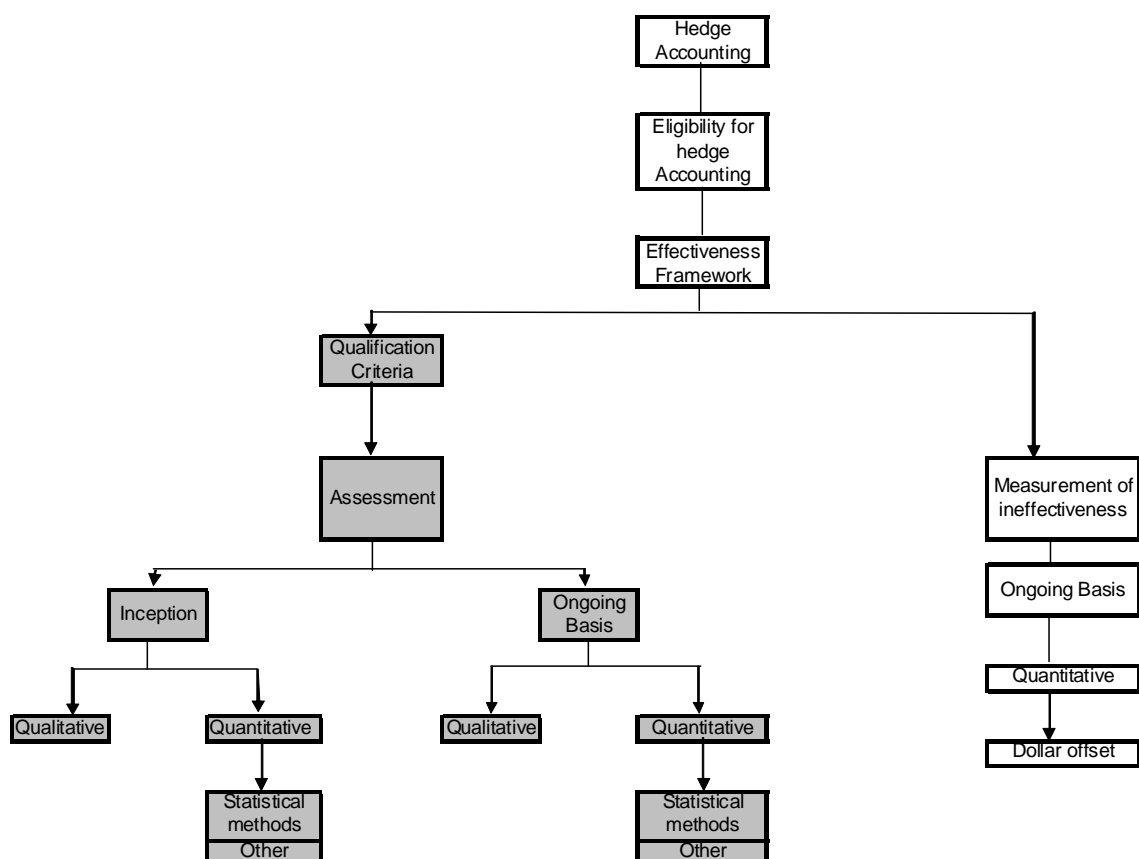
17. The staff would like to bring the issues of thresholds and methods back to the Board as we believe that defining a ‘highly effective’ threshold together with the use of percentage-based methods may create a significant issue when the effectiveness approach is applied in practice. We also see a danger of the effectiveness test inadvertently ending up where IAS 39 is today.
18. This issue stems from the fact that even if the Board generally allows hedging relationships to be assessed for effectiveness on a qualitative basis, some will still be subject to a quantitative assessment because of high levels of complexity. This will require more sophisticated methods to perform the effectiveness assessment and the definition of a rigid threshold might not be consistent with the use of those methods. Additionally, changes in the method due to an accounting consideration (‘the highly effective threshold’) are not consistent with risk management as a change in method is normally driven by robustness rather than by an accounting requirement.
19. The purpose of this paper is to discuss the relationship between the definition of a high threshold and its impact particularly on the methods used to perform the

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effectiveness assessment. The paper uses three examples (refer to appendix A) that aim to outline the issues arising from the assessment of a ‘complex’ hedging relationship. These are:

- (a) Use of percentage-based methods (**Example 1**).
- (b) Accidental offsetting and period-by-period *versus* cumulative changes (**Example 2**).
- (c) Accidental offsetting and the use of percentage-based methods for effectiveness assessment (**Example 3**).

20. This paper relates to both the qualification criteria and the methods within the effectiveness assessment workstream as illustrated in the diagram:



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Implications of using a ‘highly effective’ threshold

21. The staff believes that by specifying a *target level* of effectiveness as the threshold to qualify for hedge accounting the Board will inevitably move the effectiveness assessment towards a bright-line (albeit a ‘stealth’ version).
22. Such a bright-line has no link to risk management practice and will lead to the same issues that constituents face with the current approach.² Additionally, financial statements will not reflect risk management and be disconnected from decision-making criteria because the accounting threshold will again be a driver for the accounting.
23. The staff notes that at the May Board meeting some Board members who advocated a ‘highly effective’ threshold believe that an entity’s risk management would aim for a high target level of effectiveness anyway. That implied a view that establishing a ‘highly effective’ threshold would not necessarily create a disconnect from risk management.
24. However the staff questions why, if that premise holds true, the ‘highly effective’ threshold would be needed.
25. In the staff’s view it will inevitably create a parallel accounting exercise similar to today’s requirements. For example, the reference basis used by risk management to determine effectiveness will often be quite different from eligible hedged items for the purpose of hedge accounting (In other words, risk management may not use a risk component defined by standard setters as being eligible to be designated in a hedge accounting relationship, but rather something else, to assess risk management effectiveness.³). Thus, a mere reference to ‘highly effective’ without further specification would be meaningless while any further specification would disconnect the assessment from risk management.
26. Another concern is that the exact term ‘highly effective’ is used by IAS 39⁴ as the qualification criterion, which is then specified as the 80 to 125 per cent

² These are set out in agenda paper 7 of the May 2010 IASB meeting.

³ See paragraph 28.

⁴ See IAS 39.88(b).

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bright-line⁵. Solely deleting the bright-line guidance but keeping the same criterion will mean that the new criterion will be interpreted like the one in IAS 39 today.

27. Requiring a particular target level of effectiveness will also have an impact on the methods used for assessing hedge effectiveness. This issue is particularly relevant when complex hedges are used as part of risk management.
28. Relationships with high levels of complexity often cannot be assessed using the simple methods like percentage based methods. These methods are based on the division of the monetary change in fair value of the hedging instrument by the monetary change in fair value of the hedged item⁶. Risk management looks at relationship between variables and series of data that may or may not be limited to the term of the hedge.
29. The appendix below presents three illustrative examples where the use of a bright-line together with percentage-based methods will have an impact both on the quality of the assessment of effectiveness and also on the decision of qualifying/not qualifying for hedge accounting. The examples aim to illustrate different ways risk management is used when performing the assessment of effectiveness of the hedge in the context of decision-making.

⁵ See IAS 39.AG105.

⁶ The term 'hedged item' is used in lieu of fair value or cash flows attributable to the hedged risk to avoid the misinterpretation of this wording in IAS 39. The term hedged item refers both to the hedging of changes in fair value and cash flows.

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Appendix A

Illustrative Examples

Example 1 – Use of Percentage-Based Methods

- A1. This example illustrates the use of percentage-based methods in a ‘highly effective’ context. Three main points illustrated are that:
- (a) A highly effective threshold is based on a comparison of monetary amounts, which may have little or no role in the decision making for risk management purposes;
 - (b) A percentage-based method may support an ‘accidental offset’ relationship in qualification for hedge accounting purposes; whereas
 - (c) A statistical analysis would not support (ie screen out) an ‘accidental offset’ relationship in qualification for hedge accounting
- A2. The summary points above are discussed in greater detail at the end of this example.
- A3. Entity A (EUR functional currency) is a manufacturing entity that buys materials in various foreign currencies. As part of its risk management, entity A would like to hedge the foreign exchange risk of a highly probable forecast purchase of 10.000.000 BRL worth of materials in 12 months’ time.
- A4. Since there is no cost efficient foreign exchange market for the EUR/BRL, entity A uses the highly liquid and cost efficient BRL/USD market to hedge its exposures. From a risk management perspective, Entity A considers that a USD/BRL forward contract will be an appropriate hedge due to the high levels of correlation between the EUR/BRL and the USD/BRL.

Question arising from Example 2

- A5. Can the hedging relationship described above be assessed using percentage-based methods relying on a ‘highly effective’ threshold?

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- A6. Entity A's risk management has a two-fold process for assessing hedge effectiveness. The first step relies on percentages and is based on the forecasted interest rates and foreign exchange rates. Entity A aims to achieve highly effective hedges. Data used in this example is presented below:⁷

Term structure of interest rates from t0 to t2 for USD, BRL and EUR on a 30/360 basis

30/360 Day Count BRL		t0		t1		t2	
	Days	Spot rates	Fwd Rates	Spot rates	Fwd Rates	Spot rates	Fwd Rates
0							
6m	180	7.98%		7.65%		7.75%	
1Y	360	8.45%	8.92%	7.78%	7.91%	7.85%	7.95%
18m	540	8.96%	9.99%	7.95%	8.29%	7.90%	8.00%
2Y	720	9.31%	10.37%	8.15%	8.75%	8.10%	8.70%

30/360 Day Count USD		t0		t1		t2	
	Days	Spot rates	Fwd Rates	Spot rates	Fwd Rates	Spot rates	Fwd Rates
0							
6m	180	1.25%		1.35%		1.40%	
1Y	360	1.35%	1.45%	1.40%	1.45%	1.45%	1.50%
18m	540	1.45%	1.65%	1.45%	1.55%	1.50%	1.60%
2Y	720	1.55%	1.85%	1.50%	1.65%	1.55%	1.70%

30/360 Day Count EUR		t0		t1		t2	
	Days	Spot rates	Fwd Rates	Spot rates	Fwd Rates	Spot rates	Fwd Rates
0							
6m	180	2.50%		2.45%		2.49%	
1Y	360	2.55%	2.60%	2.50%	2.55%	2.52%	2.55%
18m	540	2.60%	2.70%	2.55%	2.65%	2.57%	2.67%
2Y	720	2.65%	2.80%	2.60%	2.75%	2.63%	2.81%

Spot foreign exchange rates from t0 to t2 for USD, BRL and EUR on a 30/360 basis

Spot foreign exchange	t0	t1	t2
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⁷ Note: For the purpose of this example it is assumed that entity A enters into the hedge in during an accounting period and the hedge straddles it. Hence, the terminology T0, T1 and T2 should be read as follows: T0 – Inception of the hedge; T1 – end of the accounting period and T2 – end of the hedging relationship. Exponential compounding is being used for calculating discount factors and forward rates.

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Rates			
EUR/BRL	2.3015	2.3125	2.3151
USD/BRL	1.7880	1.8020	1.8125
EUR/USD	1.2945	1.2903	1.3015

- A7. As described above, entity A performs the preliminary effectiveness assessment using percentage-based methods.
- A8. In this scenario entity A for its effectiveness assessment uses a hypothetical derivative that is an outright forward to buy BRL 10,000,000 and sell Euro. The price of the hypothetical forward and its fair value change from T0 to T2 is as follows:

Hypothetical Derivative (EUR/BRL) contract		
	FV of the Forward	Fwd Rate
FV of the Hypo at t0	0	2.4339
FV of the Hypo at t1	109,977	2.3705
FV of the Hypo at t2	210,856	2.3151

- A9. As the hedging derivative entity A will use a USD/BRL outright forward which is outlined below:

Hedging Derivative (USD/BRL)		
		Fwd Rate
FV of the Hedging Derivative at t0	0 ⁸	1.9133
Spot EUR/USD at t1	1.2903	
FV of the Hedging Derivative at t1	187,011	1.8472
Fv of Hedging Derivative in EUR at t1	144,933	
Spot EUR/USD at t2	1.3015	
FV of the Hedging Derivative at t2	290,552	1.8125
Fv of hedging derivative in EUR at t2	223,244	

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- A10. Using the forward rate method the effectiveness ratio will be as follows:

Effectiveness ratio
T1

⁸ Entity A assumes the initial fair value of its forward trades executed at market is zero.

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Fv of hedging derivative in EUR at t1	144,933
FV of the Hypo at t1	109,977
Effectiveness ratio	132%
T2	
FV of the Hedging Derivative at t2	290,552
FV of the Hypo at t2	210,856
Effectiveness ratio	106%

- A11. Under the current approach the hedge would not qualify for hedge accounting as the effectiveness ratio would be outside the 80 to 125 per cent effectiveness range during the first period.
- A12. From a risk management perspective, these results are likely not decisive as there is a significant influence of the USD/BRL foreign exchange rate on the EUR/BRL foreign exchange rate and therefore the suggestion that a strong statistical relationship between the two pairs of currencies exists. In order to assess such a relationship entity A applies a statistical method.
- A13. To analyse the relationship between the EUR/BRL and USD/BRL statistically, entity A collected a time series of the closing rates for the USD/BRL and for the EUR/BRL comprising 654 data points. This has been done with the aim of capturing the most accurate volatility cycle for both foreign exchange rates.
- A14. Entity A calculated the summarised descriptive statistics as follows:

EUR/BRL		USD/BRL	
Mean	2.6442	Mean	1.8891
Standard Deviation	0.2448	Standard Deviation	0.2418
Sample Variance	0.0599	Sample Variance	0.0585
Minimum	2.1749	Minimum	1.5627
Maximum	3.4374	Maximum	2.5461
Count	654	Count	654
Correlation	83.12%		

- A15. In addition to the descriptive statistics, entity A has also run a regression analysis to assess the explanatory power of the USD/BRL in the context of the EUR/BRL foreign exchange rate. The EUR/BRL has been set as the dependent variable and the USD/BRL as the independent variable. Entity A chooses to set

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the interception point to zero to avoid the noise caused by the constant and eliminate the possibility of changes in the dependent with no correspondent change in the independent variables. The results are presented below:

SUMMARY OUTPUT					
Regression Statistics					
R Square		0.994849441			
Adjusted R Square		0.993318047			
Standard Error		0.19072187			
Observations		654			
ANOVA					
	df	SS	MS	F	Significance F
Regression	1	4587.933755	4587.933755	126129.3469	0.0000
Coefficients	Standard Error	t Stat	P-value		
0					
1.390698993	0.003915841	355.146937	0.0000		

- A16. The results above indicate that there is a strong relationship between the EUR/BRL and USD/BRL. In fact, the results of the regression analysis indicate that 99.3% ⁹ of the EUR/BRL foreign exchange rate is explained by the USD/BRL foreign exchange rate (this assumes the interception point at the origin). The result is statistically significant judging by the probabilities associated with the tests F and t (P-value in the table) which are less than 0.05 for a significance level of 95%.
- A17. The outcome illustrated above arises due to the fact that the BRL foreign exchange rate has a strong relationship with the USD. This has strong foundations on the trade relationships between the United States and Brazil and the level of liquidity in the USD/BRL market. Hence, the cross foreign exchange rate USD/BRL is a good hedge for foreign exchange risk arising from the exposure to the EUR/BRL.
- A18. This strong relationship has a long term nature that a percentage-based method is unable to capture as it only covers the term of the hedging relationship.
- A19. The results of the statistical analysis provide support for Entity A's decision to qualify the USD/BRL forward contract as a hedging instrument.

⁹ The adjusted R² has been considered as it is a better measure. This adjusts the R² for the number of terms of the regression. It can be calculated by comparing the estimation errors with the variability of the original values.

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Staff Conclusion

- A20. The staff believes that based on the analysis above, percentage-based methods are not appropriate for assessing the effectiveness of this hedging relationship. This is due to the following:
- (a) They do not capture the relationship between the variables as the assessment period is limited to the duration of the hedge;
 - (b) They are sensitive to short-term changes in the term structure of interest rates;
 - (c) The impact of volatility of the explanatory variables within the hedging relationship (spot rates and interest rates) is measured as a monetary change, which is not a good indicator of the impact on the statistical relationship between variables.
 - (d) They are unable to capture the overall objective of the hedging relationship ie hedge the exposure to foreign exchange risk using a correlated pair of currencies.
- A21. The ‘highly effective’ threshold reflects the comparison of the monetary amounts that have little or no role in the decision-making process for risk management purposes where the focus is on the spot rate correlation (as a proxy for protection against exchange rate movements). Hence, its use in this context is meaningless and therefore should not be the qualifying criterion for effectiveness assessment.
- A22. The staff believes that in this specific example the relevant qualifying criterion would be the level of adjusted R^2 that makes this hedging relationship acceptable from cost and risk appetite perspectives. This is a risk management decision and cannot be quantified using a rigid threshold.
- A23. Conversely, if a similar hedging strategy between other currencies was supported only by eg a ratio analysis for a very short period (eg a week) that showed a good offset while regression analysis failed to support a significant statistical relationship this would fail the ‘other than accidental offset’ criterion in the effectiveness testing approach proposed by the staff. A percentage-based

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assessment using ‘dollar offset’ amounts that analyses only a short period would not be sufficient to reveal scenarios with merely accidental offset. This is the reason why the approach proposed by the staff would require quantitative assessments (excluding percentage-based ‘dollar offset’ methods) for complex hedges.

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Example 2 – Accidental offset and period-by-period versus cumulative changes

- A24. This example illustrates that a percentage-based method can often result in ignoring the most important factors that risk management may consider in determining whether and how to hedge an exposure. That is to say, such an approach is very unlikely to ever be used as a risk management decision-making tool. This point is discussed in greater detail at the end of this example.
- A25. Entity A is a power generator, and buys large quantities of coal for its coal-fired power stations. Following its forecast Entity A has identified a highly probable purchase of coal in 12 months. To hedge this exposure entity A has entered into a forward contract with the following relevant terms:
- (a) Maturity 12 months;
 - (b) Type of settlement: net settlement¹⁰;
 - (c) Type: South African;
 - (d) Price: USD 86 per tonne;
 - (e) Relevant reference price: London
 - (f) The contract guarantees a price of USD 86 per tonne provided that during its term the relevant spot price of the underlying asset (coal) reaches USD 92 per tonne.

Questions arising from example 2

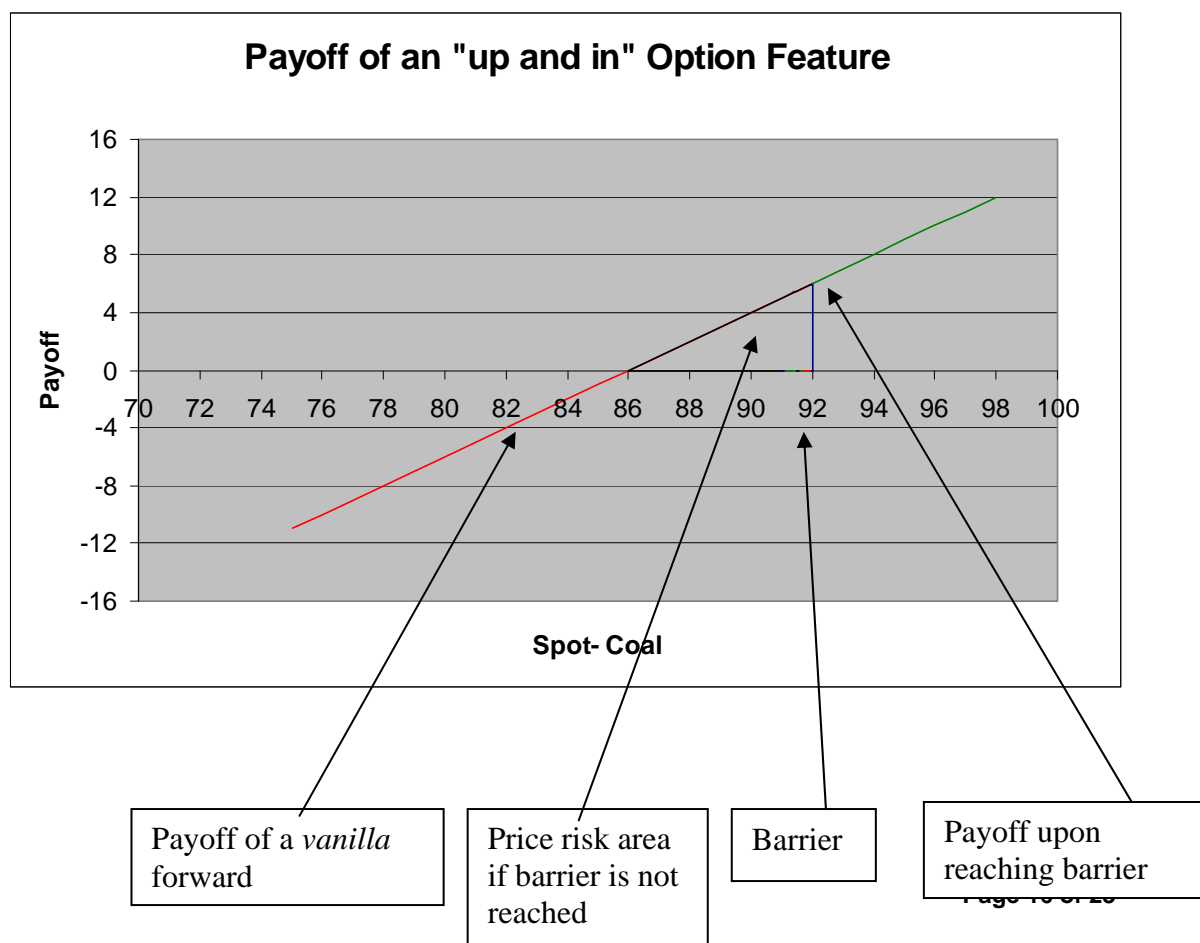
- A26. **Question 1-** Does the hedging relationship described above meet the effectiveness test for hedge accounting purposes?
- A27. **Question 2 -** If so, which methods should be used to assess the effectiveness of the hedge?

¹⁰ Hence, the own use exception in IAS 39 does not apply to this transaction.

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Staff Analysis

- A28. The relationship described aims to reduce the exposure in the variability of the cash flows due to changes in price of coal above USD 86. Thus, from a risk management perspective entity A considers it as a valid hedging relationship and wants to designate it as a cash flow hedge of a highly probable forecast transaction to buy coal in 12 months' time.
- A29. The contract used by entity A contains an embedded option that means the contract is only valid if the price of the commodity reaches a specified level (barrier). Reaching this barrier (92 USD in the example) means that the contract becomes active and provides the desired payoff by locking the price of the commodity at USD 86.
- A30. Conversely, if the price of the underlying commodity does not reach the established barrier the contract will expire worthless at maturity and the entity will then purchase coal at the prevailing market price. This type of feature is commonly termed 'up and in' option. The payoff of this feature is illustrated in the diagram below:



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- A31. The difference between the barrier (USD 92) and the exercise price of the forward (USD 86) is the price risk that entity A is willing to bear. This mechanism reduces entity A's exposure to the risk of decreases in the price of coal when compared to a plain vanilla contract (such as a forward contract to purchase coal). The plain vanilla contract, has a riskier downside risk profile as it generates symmetrical adjustments to the changes in the price of coal while the contract with the barrier feature only produces such adjustments if the barrier is reached.
- A32. In the example above, entity A chooses to measure the exposure using a hypothetical derivative that is a vanilla forward to buy coal at USD 86 with an expiry date in 12 months. Because of the 'up and in' feature at USD 86 the hedging derivative will not generate offsetting changes if the spot price of coal remains below USD 92. The change in fair value of the hedging derivative will be due to changes in the time value of the option feature while the change of the hypothetical derivative will reflect the full change in the commodity forward price.
- A33. As a result, assessment of effectiveness based on the expected offsetting changes between the fair value of the hedging instrument and hedged item will be inappropriate. This will revert to a percentage that has no economic meaning.
- A34. The assessment of the relationship outlined could rely on the forecasted changes of the price of coal for the next 12 months as this will determine whether the knock-in feature embedded in the forward contract will be triggered or not. From a risk management perspective, the prediction of the prices of coal over the next 12 months normally takes the following factors into account:
- (a) Volatility of the price of coal;
 - (b) Implied rate of return in the coal prices (ie cost of carry implications);
 - (c) Term of the purchase contract.
- A35. To perform the forecast of the behaviour of the price of the asset (coal), statistical tools like Monte Carlo simulation might be used. This can be

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supplemented by regression analysis to assess the relationship between the variables within the hedging relationship.

- A36. Another issue to take into account is the fact that this hedging relationship can also be looked at from different perspectives by risk management. Because of its complexity the hedging instrument can also be used for hedging the changes in the price of coal up to USD 92 if this is the level of price variability that risk management is prepared to accept. This situation reinforces the limitations of percentage-based methods which are unable to capture all the risk dimensions contained into the potential hedging relationships and the role they play in the decision-making process.
- A37. If this hedging relationship is assessed using actual fair value changes on a period-by-period basis it can easily fail to qualify for hedge accounting if during that period the barrier is not reached. However, if rather than using actual fair values changes on a period-by-period basis effectiveness is assessed using scenario analysis based on a forecasting exercise the conclusion might be different.

Staff Conclusion

Question 1

30. The staff believes that the hedging relationship would meet the effectiveness test and hence qualify for hedge accounting.

Question 2

- A38. The staff believes that percentage-based methods are inappropriate to perform the effectiveness assessment for this hedging relationship. This is due to:
- (a) the complexity of the hedge;
 - (b) the fact that percentage based methods do not capture the main relationship influencing the assessment of effectiveness (ie the forecast changes in the price of coal and whether they are expected to reach the *knock-in* barrier);

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- (c) the fact that they do not provide any meaningful information for risk management and are unlikely to be used as a decision-making tool.

A39. As a result of the above, the staff believes that statistical based methods should be used for assessment of effectiveness in this example.

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Example 3 – Accidental offset and the use of percentage-based methods

- A40. This example once again illustrates that a percentage-based method can result in ‘accidental offset’ hedging relationships meeting a highly effective threshold, particularly in an environment of low price volatility. This is discussed in greater detail at the end of this example.
- A41. Taking the same data as Example 2 assume now that Entity A has entered into a forward contract with the following relevant terms.
- (d) Maturity 12 months;
 - (e) Type of settlement: net settlement¹¹;
 - (f) Type: South African;
 - (g) Price: USD 86 per tonne;
 - (h) Relevant reference price: London
 - (i) The contract guarantees a price of USD 86 per tonne provided that during its term the relevant spot price of the underlying asset (coal) never reaches USD 90 per tonne nor drops below USD 82¹².

Questions arising from example 3

- A42. **Question 1-** Does the hedging relationship described above meet the effectiveness test for hedge accounting purposes?
- A43. **Question 2 -** If so, which methods should be used to assess the effectiveness of the hedge?

Staff Analysis

- A44. The relationship described aims to reduce the exposure in the variability of the cash flows due to changes in price of coal within a range (ie between USD 82 and USD 90). This is achieved by incorporating two features that enable Entity

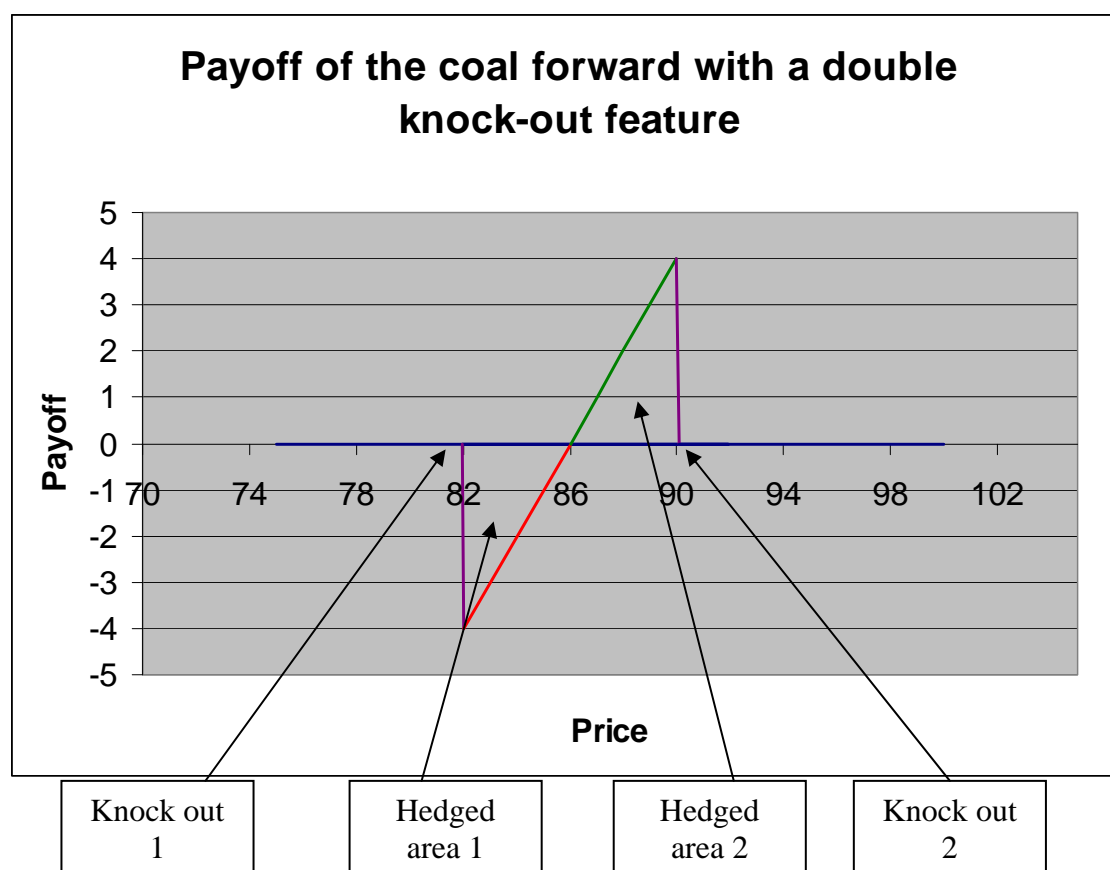
¹¹ Hence, the own use exception in IAS 39 does not apply to this transaction.

¹² A symmetrical structure has been assumed for simplicity. In a real scenario the premium paid on the purchased option (*down and out*) would have been greater to make the contract attractive for the counterparty and create a net purchased option.

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A to cancel the contract if the price of coal decreases below USD 82 or the counterparty to cancel it if the price of coal increases beyond USD 90.

- A45. The contract used by entity A contains two embedded options meaning that the contract is only valid if the price of coal remains for the entire term between USD 82 and USD 90 (the two *barriers*). Reaching either of the barriers will terminate the contract and will give rise to the payment of the intrinsic value of the contract at the expiration date.
- A46. This type of feature is commonly termed *inverse collar* and this includes two barriers, a purchased ‘*down and out*’ option and a written ‘*up and out*’ option. It has normally a zero-cost¹³. The payoff of this feature is illustrated in the diagram below:



¹³ A symmetrical behaviour has been assumed for simplicity. In a real scenario the premium paid on the purchased option (down and out) would have been greater or the strike price lower to make the contract attractive for the counterparty and create a net purchased option.

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- A47. This strategy contradicts most of the risk management strategies as their aim is to 'lock' the price of the commodity at a specified level and thereby lock in eg sales or cost of sales.
- A48. This strategy 'locks' the price of the highly probable forecast purchase if the spot price of the coal varies within a specified interval (USD 82 and USD 90). While this might be a valid strategy in a market with low volatility it is questionable what offsetting other than accidental is achieved if the market is slightly more volatile.
- A49. If percentage based methods are applied, high levels of effectiveness will be shown provided that the spot prices remain within the range. However, the key issue from a risk management perspective is to understand whether the two barriers are 'genuine' and the likelihood of any of the barriers be reached.
- A50. To achieve this objective risk management needs to analyse the expected range of the price of coal for the next 12 months and assess the likelihood that during the hedge period the price is inside or outside of the barriers. The forecast takes into account the volatility of the coal prices and uses the long term time series of the prices of coal as base data. This is not captured by percentage based methods as data used by these is limited to the period of the hedge and is based on the monetary change of hedged instruments and hedged items.

Staff Conclusion

Question 1

- A51. The staff believes that whether the hedging relationship would meet the effectiveness test depends on the likelihood of the price of coal remaining within the two barriers. If the two barriers are assessed as non-genuine (because the price of coal is likely to move outside the range in one or more periods), then this hedging relationship will not be within the scope of hedge accounting because it will only achieve accidental offsetting.

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Question 2

- A52. The staff believes that percentage-based methods are inappropriate to perform the effectiveness assessment for this hedging relationship. This is due to:
- (a) the complexity of the hedge;
 - (b) the fact that percentage based methods do not capture the main relationship influencing the assessment of effectiveness (ie the future changes in the price of coal and the likelihood of remaining within the two barriers and hence that the two *knock-out* features will *not* be activated);
 - (c) the fact that they do not provide any meaningful information for risk management and are unlikely to be used as a decision-making tool;
 - (d) the fact that percentage-based methods may lead to a misleading conclusion when the hedge is within the interval and the barriers are non-genuine.
- A53. As a result of the above, the staff believes that statistical based methods should be used for assessment of effectiveness in this example