

## IAS 39 *Financial Instruments: Recognition and Measurement* Illustrative example

*This example accompanies, but is not part of, IAS 39.*

### Facts

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- IE1 On 1 January 20X1, Entity A identifies a portfolio comprising assets and liabilities whose interest rate risk it wishes to hedge. The liabilities include demandable deposit liabilities that the depositor may withdraw at any time without notice. For risk management purposes, the entity views all of the items in the portfolio as fixed rate items.
- IE2 For risk management purposes, Entity A analyses the assets and liabilities in the portfolio into repricing time periods based on expected repricing dates. The entity uses monthly time periods and schedules items for the next five years (ie it has 60 separate monthly time periods).<sup>25</sup> The assets in the portfolio are prepayable assets that Entity A allocates into time periods based on the expected prepayment dates, by allocating a percentage of all of the assets, rather than individual items, into each time period. The portfolio also includes demandable liabilities that the entity expects, on a portfolio basis, to repay between one month and five years and, for risk management purposes, are scheduled into time periods on this basis. On the basis of this analysis, Entity A decides what amount it wishes to hedge in each time period.
- IE3 This example deals only with the repricing time period expiring in three months' time, ie the time period maturing on 31 March 20X1 (a similar procedure would be applied for each of the other 59 time periods). Entity A has scheduled assets of CU100 million<sup>26</sup> and liabilities of CU80 million into this time period. All of the liabilities are repayable on demand.
- IE4 Entity A decides, for risk management purposes, to hedge the net position of CU20 million and accordingly enters into an interest rate swap<sup>27</sup> on 1 January 20X1 to pay a fixed rate and receive LIBOR, with a notional principal amount of CU20 million and a fixed life of three months.
- IE5 This example makes the following simplifying assumptions:
- (a) the coupon on the fixed leg of the swap is equal to the fixed coupon on the asset;
  - (b) the coupon on the fixed leg of the swap becomes payable on the same dates as the interest payments on the asset; and

<sup>25</sup> In this example principal cash flows have been scheduled into time periods but the related interest cash flows have been included when calculating the change in the fair value of the hedged item. Other methods of scheduling assets and liabilities are also possible. Also, in this example, monthly repricing time periods have been used. An entity may choose narrower or wider time periods.

<sup>26</sup> In this example monetary amounts are denominated in 'currency units (CU)'.

<sup>27</sup> The example uses a swap as the hedging instrument. An entity may use forward rate agreements or other derivatives as hedging instruments.

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- (c) the interest on the variable leg of the swap is the overnight LIBOR rate. As a result, the entire fair value change of the swap arises from the fixed leg only, because the variable leg is not exposed to changes in fair value due to changes in interest rates.

In cases when these simplifying assumptions do not hold, greater ineffectiveness will arise. (The ineffectiveness arising from (a) could be eliminated by designating as the hedged item a portion of the cash flows on the asset that are equivalent to the fixed leg of the swap.)

IE6 It is also assumed that Entity A tests effectiveness on a monthly basis.

IE7 The fair value of an equivalent non-prepayable asset of CU20 million, ignoring changes in value that are not attributable to interest rate movements, at various times during the period of the hedge is as follows:

	<b>1 Jan 20X1</b>	<b>31 Jan 20X1</b>	<b>1 Feb 20X1</b>	<b>28 Feb 20X1</b>	<b>31 Mar 20X1</b>
Fair value (asset) (CU)	20,000,000	20,047,408	20,047,408	20,023,795	Nil

IE8 The fair value of the swap at various times during the period of the hedge is as follows:

	<b>1 Jan 20X1</b>	<b>31 Jan 20X1</b>	<b>1 Feb 20X1</b>	<b>28 Feb 20X1</b>	<b>31 Mar 20X1</b>
Fair value (liability) (CU)	Nil	(47,408)	(47,408)	(23,795)	Nil

## Accounting treatment

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IE9 On 1 January 20X1, Entity A designates as the hedged item an amount of CU20 million of assets in the three-month time period. It designates as the hedged risk the change in the value of the hedged item (ie the CU20 million of assets) that is attributable to changes in LIBOR. It also complies with the other designation requirements set out in paragraphs 88(d) and AG119 of the Standard.

IE10 Entity A designates as the hedging instrument the interest rate swap described in paragraph IE4.

### **End of month 1 (31 January 20X1)**

IE11 On 31 January 20X1 (at the end of month 1) when Entity A tests effectiveness, LIBOR has decreased. Based on historical prepayment experience, Entity A estimates that, as a consequence, prepayments will occur faster than previously estimated. As a result it re-estimates the amount of assets scheduled into this time period (excluding new assets originated during the month) as CU96 million.

IE12 The fair value of the designated interest rate swap with a notional principal of CU20 million is (CU47,408)<sup>28</sup> (the swap is a liability).

IE13 Entity A computes the change in the fair value of the hedged item, taking into account the change in estimated prepayments, as follows.

- (a) First, it calculates the percentage of the initial estimate of the assets in the time period that was hedged. This is 20 per cent (CU20 million ÷ CU100 million).
- (b) Second, it applies this percentage (20 per cent) to its revised estimate of the amount in that time period (CU96 million) to calculate the amount that is the hedged item based on its revised estimate. This is CU19.2 million.
- (c) Third, it calculates the change in the fair value of this revised estimate of the hedged item (CU19.2 million) that is attributable to changes in LIBOR. This is CU45,511 (CU47,408<sup>29</sup> × (CU19.2 million ÷ CU20 million)).

IE14 Entity A makes the following accounting entries relating to this time period:

Dr Cash	CU172,097	
Cr Profit or loss (interest income) <sup>(a)</sup>		CU172,097

*To recognise the interest received on the hedged amount (CU19.2 million).*

Dr Profit or loss (interest expense)	CU179,268	
Cr Profit or loss (interest income)		CU179,268
Cr Cash		Nil

*To recognise the interest received and paid on the swap designated as the hedging instrument.*

Dr Profit or loss (loss)	CU47,408	
Cr Derivative liability		CU47,408

*To recognise the change in the fair value of the swap.*

Dr Separate line item in the statement of financial position	CU45,511	
Cr Profit or loss (gain)		CU45,511

*To recognise the change in the fair value of the hedged amount.*

- (a) This example does not show how amounts of interest income and interest expense are calculated.

IE15 The net result on profit or loss (excluding interest income and interest expense) is to recognise a loss of (CU1,897). This represents ineffectiveness in the hedging relationship that arises from the change in estimated prepayment dates.

<sup>28</sup> see paragraph IE8

<sup>29</sup> ie CU20,047,408 – CU20,000,000. See paragraph IE7.

**Beginning of month 2**

- IE16 On 1 February 20X1 Entity A sells a proportion of the assets in the various time periods. Entity A calculates that it has sold  $8\frac{1}{3}$  per cent of the entire portfolio of assets. Because the assets were allocated into time periods by allocating a percentage of the assets (rather than individual assets) into each time period, Entity A determines that it cannot ascertain into which specific time periods the sold assets were scheduled. Hence it uses a systematic and rational basis of allocation. Based on the fact that it sold a representative selection of the assets in the portfolio, Entity A allocates the sale proportionately over all time periods.
- IE17 On this basis, Entity A computes that it has sold  $8\frac{1}{3}$  per cent of the assets allocated to the three-month time period, ie CU8 million ( $8\frac{1}{3}$  per cent of CU96 million). The proceeds received are CU8,018,400, equal to the fair value of the assets.<sup>30</sup> On derecognition of the assets, Entity A also removes from the separate line item in the statement of financial position an amount that represents the change in the fair value of the hedged assets that it has now sold. This is  $8\frac{1}{3}$  per cent of the total line item balance of CU45,511, ie CU3,793.
- IE18 Entity A makes the following accounting entries to recognise the sale of the asset and the removal of part of the balance in the separate line item in the statement of financial position:

Dr	Cash	CU8,018,400	
	Cr Asset		CU8,000,000
	Cr Separate line item in the statement of financial position		CU3,793
	Cr Profit or loss (gain)		CU14,607

*To recognise the sale of the asset at fair value and to recognise a gain on sale.*

Because the change in the amount of the assets is not attributable to a change in the hedged interest rate no ineffectiveness arises.

- IE19 Entity A now has CU88 million of assets and CU80 million of liabilities in this time period. Hence the net amount Entity A wants to hedge is now CU8 million and, accordingly, it designates CU8 million as the hedged amount.
- IE20 Entity A decides to adjust the hedging instrument by designating only a proportion of the original swap as the hedging instrument. Accordingly, it designates as the hedging instrument CU8 million or 40 per cent of the notional amount of the original swap with a remaining life of two months and a fair value of CU18,963.<sup>31</sup> It also complies with the other designation requirements in paragraphs 88(a) and AG119 of the Standard. The CU12 million of the notional amount of the swap that is no longer designated as the hedging instrument is

<sup>30</sup> The amount realised on sale of the asset is the fair value of a prepayable asset, which is less than the fair value of the equivalent non-prepayable asset shown in paragraph IE7.

<sup>31</sup> CU47,408 × 40 per cent

either classified as held for trading with changes in fair value recognised in profit or loss, or is designated as the hedging instrument in a different hedge.<sup>32</sup>

IE21 As at 1 February 20X1 and after accounting for the sale of assets, the separate line item in the statement of financial position is CU41,718 (CU45,511 – CU3,793), which represents the cumulative change in fair value of CU17.6 million<sup>33</sup> of assets. However, as at 1 February 20X1, Entity A is hedging only CU8 million of assets that have a cumulative change in fair value of CU18,963.<sup>34</sup> The remaining separate line item in the statement of financial position of CU22,755<sup>35</sup> relates to an amount of assets that Entity A still holds but is no longer hedging. Accordingly Entity A amortises this amount over the remaining life of the time period, ie it amortises CU22,755 over two months.

IE22 Entity A determines that it is not practicable to use a method of amortisation based on a recalculated effective yield and hence uses a straight-line method.

**End of month 2 (28 February 20X1)**

IE23 On 28 February 20X1 when Entity A next tests effectiveness, LIBOR is unchanged. Entity A does not revise its prepayment expectations. The fair value of the designated interest rate swap with a notional principal of CU8 million is (CU9,518)<sup>36</sup> (the swap is a liability). Also, Entity A calculates the fair value of the CU8 million of the hedged assets as at 28 February 20X1 as CU8,009,518.<sup>37</sup>

IE24 Entity A makes the following accounting entries relating to the hedge in this time period:

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32 The entity could instead enter into an offsetting swap with a notional principal of CU12 million to adjust its position and designate as the hedging instrument all CU20 million of the existing swap and all CU12 million of the new offsetting swap.

33  $CU19.2 \text{ million} - (8\frac{1}{3}\% \times CU19.2 \text{ million})$

34  $CU41,718 \times (CU8 \text{ million} \div CU17.6 \text{ million})$

35  $CU41,718 - CU18,963$

36  $CU23,795$  [see paragraph IE8]  $\times (CU8 \text{ million} \div CU20 \text{ million})$

37  $CU20,023,795$  [see paragraph IE7]  $\times (CU8 \text{ million} \div CU20 \text{ million})$

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Dr	Cash	CU71,707	
	Cr Profit or loss (interest income)		CU71,707

*To recognise the interest received on the hedged amount (CU8 million).*

Dr	Profit or loss (interest expense)	CU71,707	
	Cr Profit or loss (interest income)		CU62,115
	Cr Cash		CU9,592

*To recognise the interest received and paid on the portion of the swap designated as the hedging instrument (CU8 million).*

Dr	Derivative liability	CU9,445	
	Cr Profit or loss (gain)		CU9,445

*To recognise the change in the fair value of the portion of the swap designated as the hedging instrument (CU8 million) (CU9,518 – CU18,963).*

Dr	Profit or loss (loss)	CU9,445	
	Cr Separate line item in the statement of financial position		CU9,445

*To recognise the change in the fair value of the hedged amount (CU8,009,518 – CU8,018,963).*

IE25 The net effect on profit or loss (excluding interest income and interest expense) is nil reflecting that the hedge is fully effective.

IE26 Entity A makes the following accounting entry to amortise the line item balance for this time period:

Dr	Profit or loss (loss)	CU11,378	
	Cr Separate line item in the statement of financial position		CU11,378 <sup>(a)</sup>

*To recognise the amortisation charge for the period.*

(a)  $CU22,755 \div 2$

**End of month 3**

IE27 During the third month there is no further change in the amount of assets or liabilities in the three-month time period. On 31 March 20X1 the assets and the swap mature and all balances are recognised in profit or loss.

IE28 Entity A makes the following accounting entries relating to this time period:

Dr	Cash	CU8,071,707	
	Cr Asset (statement of financial position)		CU8,000,000
	Cr Profit or loss (interest income)		CU71,707

*To recognise the interest and cash received on maturity of the hedged amount (CU8 million).*

Dr	Profit or loss (interest expense)	CU71,707	
	Cr Profit or loss (interest income)		CU62,115
	Cr Cash		CU9,592

*To recognise the interest received and paid on the portion of the swap designated as the hedging instrument (CU8 million).*

Dr	Derivative liability	CU9,518	
	Cr Profit or loss (gain)		CU9,518

*To recognise the expiry of the portion of the swap designated as the hedging instrument (CU8 million).*

Dr	Profit or loss (loss)	CU9,518	
	Cr Separate line item in the statement of financial position		CU9,518

*To remove the remaining line item balance on expiry of the time period.*

IE29 The net effect on profit or loss (excluding interest income and interest expense) is nil reflecting that the hedge is fully effective.

IE30 Entity A makes the following accounting entry to amortise the line item balance for this time period:

Dr	Profit or loss (loss)	CU11,377	
	Cr Separate line item in the statement of financial position		CU11,377 <sup>(a)</sup>

*To recognise the amortisation charge for the period.*

(a)  $CU22,755 \div 2$

## Summary

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IE31 The tables below summarise:

- changes in the separate line item in the statement of financial position;
- the fair value of the derivative;
- the profit or loss effect of the hedge for the entire three-month period of the hedge; and
- interest income and interest expense relating to the amount designated as hedged.

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Description	1 Jan 20X1 CU	31 Jan 20X1 CU	1 Feb 20X1 CU	28 Feb 20X1 CU	31 Mar 20X1 CU
<b>Amount of asset hedged</b>	<b>20,000,000</b>	<b>19,200,000</b>	<b>8,000,000</b>	<b>8,000,000</b>	<b>8,000,000</b>
<b>(a) Changes in the separate line item in the statement of financial position</b>					
Brought forward:					
Balance to be amortised	Nil	Nil	Nil	22,755	11,377
Remaining balance	Nil	Nil	45,511	18,963	9,518
Less: Adjustment on sale of asset					
	Nil	Nil	(3,793)	Nil	Nil
Adjustment for change in fair value of the hedged asset					
	Nil	45,511	Nil	(9,445)	(9,518)
Amortisation	Nil	Nil	Nil	(11,378)	(11,377)
<b>Carried forward:</b>					
<b>Balance to be amortised</b>	<b>Nil</b>	<b>Nil</b>	<b>22,755</b>	<b>11,377</b>	<b>Nil</b>
<b>Remaining balance</b>	<b>Nil</b>	<b>45,511</b>	<b>18,963</b>	<b>9,518</b>	<b>Nil</b>
<b>(b) The fair value of the derivative</b>					
	1 Jan 20X1	31 Jan 20X1	1 Feb 20X1	28 Feb 20X1	31 Mar 20X1
CU20,000,000	Nil	47,408	—	—	—
CU12,000,000	Nil	—	28,445	No longer designated as the hedging instrument.	
CU8,000,000	Nil	—	18,963	9,518	Nil
<b>Total</b>	<b>Nil</b>	<b>47,408</b>	<b>47,408</b>	<b>9,518</b>	<b>Nil</b>
<b>(c) Profit or loss effect of the hedge</b>					
	1 Jan 20X1	31 Jan 20X1	1 Feb 20X1	28 Feb 20X1	31 Mar 20X1
Change in line item: asset	Nil	45,511	N/A	(9,445)	(9,518)
Change in derivative fair value	Nil	(47,408)	N/A	9,445	9,518
<b>Net effect</b>	<b>Nil</b>	<b>(1,897)</b>	<b>N/A</b>	<b>Nil</b>	<b>Nil</b>
<b>Amortisation</b>	<b>Nil</b>	<b>Nil</b>	<b>N/A</b>	<b>(11,378)</b>	<b>(11,377)</b>

In addition, there is a gain on sale of assets of CU14,607 at 1 February 20X1.

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**(d) Interest income and interest expense relating to the amount designated as hedged****Profit or loss**

<b>recognised for the amount hedged</b>	<b>1 Jan 20X1</b>	<b>31 Jan 20X1</b>	<b>1 Feb 20X1</b>	<b>28 Feb 20X1</b>	<b>31 Mar 20X1</b>
<b>Interest income</b>					
– on the asset	Nil	172,097	N/A	71,707	71,707
– on the swap	Nil	179,268	N/A	62,115	62,115
<b>Interest expense</b>					
– on the swap	Nil	(179,268)	N/A	(71,707)	(71,707)