

IFRS 7 – potential impact of market risks*

The potential impacts of market risks is one of the more significant disclosure changes that companies need to prepare for under IFRS 7, Financial Instruments: Disclosures. We have therefore extended our key issues flyer (IFRS 7 – Ready or not) to give you an illustration of how these risks might be calculated in practice.



The sensitivity analysis over the page illustrates the potential impact on the income statement and equity for ‘reasonably possible’ market movements. These impacts could relate to financial instruments measured at any of amortised cost, fair value through profit and loss, or fair value with changes in value recognised in equity. IFRS 7 does not prescribe a format for the presentation of this information.

The following case study:

- A. Suggests one possible way an entity might calculate the amounts to be disclosed in its sensitivity analysis
- B. Illustrates how the analysis can be disclosed in the financial statements of the entity
- C. Provides an illustration of how to calculate and present sensitivity analysis relating to foreign currency exposure in a multinational group which comprises entities with different functional currencies.

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Example sensitivity analysis showing how these risks might be calculated

A. Calculating the sensitivity disclosure analysis (IFRS 7, paragraph 40)

Entity A is a manufacturing company. Its functional and presentation currency is 'Currency' (C). Its financial instruments include cash, accounts receivable, trade payables, listed equity securities and borrowings. Listed equity securities include both portfolios classified as fair value through profit and loss (FVTPL) and available-for-sale (AFS).

Entity A also enters into derivative instruments (interest rate swaps and foreign exchange contracts) as part of its financial risk management activities. Its borrowings are denominated in C and USD and they are at floating interest rates. Based on historic movements and volatilities in these market variables, and management's knowledge and experience of the financial markets, Entity A believes the following movements are 'reasonably possible' over a 12 month period. The movements shown are illustrative only; management would need to consider

what movements would be considered 'reasonably possible' based on historic movements, future expectations and economic forecasts. The assumptions used for this purpose should be consistent with the assumptions used internally by management for budgeting and planning purposes and the development of its financial risk management strategy.

- Proportional foreign exchange rate movement of -11% (depreciation of C) and +11% (appreciation of C) against the USD, from a USD:C spot rate of 0.787
- A parallel shift of +10bp/-10bp in C market interest rates from year-end rates of 3.85% and +60bp/-60bp of USD market interest rates from year-end rates of 5.37%.
- Proportional other price risk movement of equity securities listed on the DAX and Dow Jones equity index of 5%.

If these movements were to occur, the impact on consolidated profit and loss after tax, and equity after tax for each category of financial instrument held at the balance date is shown below. See assumptions (opposite) relating to the table.

	Carrying amount (C'000)	Interest rate risk (IR)				Foreign exchange rate risk (10)				Other price risk			
		+10 bp of C IR + 60 bp of USD IR		-10 bp of C IR - 60 bp of USD IR		11%		-11%		5%		-5%	
		Profit (C'000)	Other movements in equity (C'000)	Profit (C'000)	Other movements in equity (C'000)	Profit (C'000)	Other movements in equity (C'000)	Profit (C'000)	Other movements in equity (C'000)	Profit (C'000)	Other movements in equity (C'000)	Profit (C'000)	Other movements in equity (C'000)
Financial assets													
Cash and cash equivalents (1)	4,135	9	-	(9)	-	(116)	-	116	-	-	-	-	-
Accounts receivable (2)	610	-	-	-	-	(17)	-	17	-	-	-	-	-
Other assets FVTPL (3)	1,300	-	-	-	-	-	-	-	-	65	-	(65)	-
AFS investments (4)	1,800	-	-	-	-	-	-	-	-	-	90	-	(90)
Derivatives – FVTPL (foreign exchange Contracts) (5)	28	-	-	-	-	47	-	(47)	-	-	-	-	-
Derivatives – designated as cash flow hedges (interest rate swaps) (6)	8	9	40	(9)	(40)	-	-	-	-	-	-	-	-
Impact on financial assets before tax		18	40	(18)	(40)	(86)	-	86	-	65	90	(65)	(90)
Tax charge of 30%		(6)	(12)	6	12	26	-	(26)	-	(20)	(27)	20	27
Impact on financial assets after tax		12	28	(12)	(28)	(60)	-	60	-	45	63	(45)	(63)
Financial liabilities													
Derivatives – designated as cash flow hedges (foreign exchange contracts) (7)	(49)	-	-	-	-	-	(78)	-	78	-	-	-	-
Trade payables (8)	(650)	-	-	-	-	28	-	(28)	-	-	-	-	-
Borrowings (9)	(11,935)	(21)	-	21	-	195	-	(195)	-	-	-	-	-
Impact on financial liabilities before tax		(21)	-	21	-	223	-	(223)	-	-	-	-	-
Tax charge of 30%		6	-	(6)	-	(67)	23	67	(23)	-	-	-	-
Impact on financial liabilities after tax		(15)	-	15	-	156	(55)	(156)	55	-	-	-	-
Total increase/(decrease)		(3)	28	3	(28)	96	(55)	(96)	55	45	63	(45)	(63)

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Assumptions relating to the table opposite and calculations

The figures in brackets are debits and therefore losses in the income statement and decreases in equity.

The percentage calculations below have been rounded off to three decimal places.

Note: As Entity A has hedged its C denominated floating rate debt exposure with interest rates swaps, the (increase)/decrease in payments on C denominated floating debt of C(10k)/C10k is offset by movements on interest rate swaps designated as cash flow hedges of C9k/C(9k) as per note 6.

1. Cash and cash equivalents include deposits at call which are at floating interest rates and C1,050k of USD denominated cash and cash equivalents (USD value at year-end = $[1,050k \times 0.787] = \text{USD } 1,333k$).

Sensitivity to a +/- 10bp movement in C market interest rates: $+/- [C3,085k \times 10bp/100/100] = C3k / C(3k)$.

Sensitivity to a +/- 60bp movement in USD market interest rates: $[C1,050k \times 60bp/100/100] = C6k / C(6k)$.

Sensitivity to a + 11% movement in foreign exchange rate USD:C: $[(USD1,333k \times 0.874) - C1,050k] = C(115k)$.

Similarly for a -11% movement in foreign exchange rates: $[(USD1,333k \times 0.7001) - C1,050k] = C115k$.

2. Accounts receivables include C150k of USD denominated receivables. (USD amount at year-end = $[C150k \times 0.787 = \text{USD } 190k]$).

Sensitivity to a +11% movement in foreign exchange rates USD:C: $[USD 190k \times 0.874] - C150k = C(17k)$. Similarly for a -11% movement in foreign exchange rates $[(USD 190k \times 0.700) - C150k] = C17k$.

3. Other FVTPL assets are equities listed within DAX and Dow Jones index.

Sensitivity to a +/-5% movement in the DAX equity price index: $+/- [C750k \times 5\%] = C38k/C(38k)$.

Sensitivity to a +/-5% movement in the Dow Jones equity price index: $+/- [C550k \times 5\%] = C27k/C(27k)$.

4. AFS investments are equities listed within DAX index and denominated in C. Sensitivity to a +/-5% movement in the DAX equity price index: $+/- [C1,800k \times 5\%] = C90k/C(90k)$.

5. Derivatives designated as FVTPL are foreign exchange contracts used for economic hedging of forecast sales denominated in USD. The notional amount is USD 609k. A +/-11% shift in foreign exchange rates USD:C has an impact of C47/C(47k), based on a derivative valuation model with theoretical forward rates.

An equity price decrease in the above case has not triggered an impairment. However, if it did, some of the movement caused by the decrease would go through the income statement.

6. Derivatives designated as cash flow hedges are interest rate swaps used to hedge floating rate future interest expense on C denominated floating rate borrowings.

Based on outputs from a derivative valuation model, which utilises spot and forward interest rates and discounted cash flow analysis, a parallel shift of +/- 10 bp in base interest-rates results in an impact on derivative valuation of C49k/C(49k), of which C9k/C(9k) would be recycled to profit or loss where it would offset an equal and opposite change in the interest expense on the hedged borrowings.

7. Derivatives designated as cash flow hedges are foreign exchange contracts used to hedge against the USD:C foreign exchange risk arising from USD denominated forecast purchases. The notional amount is USD 1,016k. Based on outputs from a derivative valuation model, a +/-11% shift in the USD:C foreign exchange rate has an impact of C(78k)/C78k on derivative valuation. There is no profit and loss sensitivity as the hedges are 100% effective.

8. Trade payables include C250k of USD denominated trade payables. (USD balance at year-end = $[C250k \times 0.787] = \text{USD } 317k$).

Sensitivity to a + 11% movement in foreign exchange rate USD:C: $[(USD317k \times 0.874) - C250k] = C28k$. Similarly for a -11% movement in foreign exchange rates: $[(USD317k \times 0.700) - C250k] = C(28k)$.

9. Borrowings include C10,165k of C denominated floating rate debt and C1,770k of USD denominated floating rate debt (USD balance = $[C1,770k \times 0.787] = \text{USD } 2,248k$).

Sensitivity to a +/- 10bp movement in C market interest rates: $[C10,165k \times 10bp/100/100] = C(10k) / C10k$.

Sensitivity to a +/- 60bp movement in USD market interest rates: $[C1,770k \times 60bp/100/100] = C(11k) / C11k$.

Sensitivity to a +11% movement in foreign exchange rate USD:C: $[(USD2,248k \times 0.874) - C1,770k] = C195k$. Similarly for a -11% movement in foreign exchange rates: $[(USD2,248k \times 0.700) - C1,770k] = C(195k)$.

10. Foreign exchange rate risk sensitivity to foreign exchange movements in the above example has been calculated on a symmetric basis. The symmetric basis assumes that an increase or decrease in foreign exchange movement would result in the same amount. The method assumes the currency in question is used as a stable denominator. The same calculation can also be performed on an asymmetric basis. Both methods are appropriate as long as the entity discloses exactly how the calculation has been performed. In the above example if sensitivity to cash and cash equivalents to foreign currency exposure is calculated using the asymmetric method the resulting amounts would be as follows:

The exchange rate would be presented as C:USD 1.27 spot rate.

Sensitivity to a -11% movement in foreign exchange rate C: USD: $[(USD1,333k/1.41) - C1,050k] = C(104k)$.

Similarly for a +11% movement in foreign exchange rates: $[(USD1,333k/1.13) - C1,050k] = C130k$.

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Example sensitivity analysis showing how these risks might be calculated

B. Illustration of disclosures in the financial statements

The calculations in case study A on page 2 can be disclosed in the financial statements in the following way:

Interest rate risk

At 31 December 2006, if C market interest rates had been 10 basis points higher/lower and USD market interest rates had been 60 basis points higher/lower with all other variables held constant, post-tax profit for the year would have been C3k (2005: C15k) lower/higher, mainly as a result of higher/lower interest expense on USD denominated floating rate borrowings compensated by higher/lower interest income on floating rate cash and cash equivalents. Profit is less sensitive to movement in USD:C: exchange rates in 2006 than 2005 because of the decreased amount of USD denominated borrowings in 2006.

Other components of equity would have been C28k (2005: C26k) higher/lower as a result of an increase/decrease in the fair value of derivatives designated as cash flow hedges of floating rate borrowings.

Foreign exchange risk

At 31 December 2006, if C had strengthened by 11% against USD with all other variables held constant, post-tax profit for the year would have been C96k (2005: C72k) higher, mainly as a result of foreign exchange gains on translation of USD denominated borrowings and trade payables compensated by

foreign exchange losses on translation of USD denominated cash and cash equivalents. Other components of equity would have been C56k lower (2005: 52k) as a result of a decrease in fair value of derivatives designated as cash flow hedges of USD denominated borrowings.

Conversely, if C had weakened by 11% against USD with all other variables held constant, post-tax profit for the year would have been C96k (2005: C110k) lower and other components of equity would have been C56k (2005: C72k) higher.

Price risk

The table below summarises the impact of increases in the two equity indexes on the entity's post-tax profit for the year and on other components of equity. The analysis is based on the assumption that the equity indexes had increased by 5% with all other variables held constant and all the Entity's equity instruments moved according to the historical correlation with the index. Decreases in the indexes would be expressed as negatives.

Index	Impact on post-tax profit in (C'000)		Impact on other components of equity in (C'000)	
	2006	2005	2006	2005
DAX	27	21	63	54
Dow Jones	19	19	-	-

C. Calculating and presenting sensitivity analysis relating to foreign currency exposure in a multinational group which comprises entities with different functional currencies

The example below illustrates one possible way of calculating and presenting sensitivity analysis relating to foreign currency exposure in such a group.

It only shows the impact of foreign currency risk on a group's consolidated profit and loss. In addition, the entities in the example do not apply hedge accounting and do not hold any available-for-sale financial assets. These items would create an additional foreign currency exposure and an impact on the group's equity, which also would need to be flexed.

The exposure on translating the financial statements of subsidiaries into the presentation currency does not need to be included in the sensitivity analysis.

The group consists of a parent and two subsidiaries. The parent is based on the Euro-zone and has a € functional currency. It has a UK subsidiary with a Sterling (£) functional currency and a North American subsidiary with a US Dollar (\$) functional currency. The group's presentation currency is Euro (€).

These three currencies are also the main currencies to which the group entities are exposed. Each entity holds monetary items in all three currencies.

The analysis below does not show the monetary items that are denominated in the functional currency of the entity, because they do not create any FX exposures.

The closing rates at the balance sheet date are:

1 € / £	0.67
1 € / \$	1.32
1 £ / \$	1.97

The first step would be to highlight all the monetary amounts in each entity that are exposed to foreign currency movements.

case study C. continued ►

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Example sensitivity analysis showing how these risks might be calculated

Parent company (€ functional currency)

The parent company's functional currency is the Euro and therefore any monetary assets or liabilities that are denominated in a currency other than Euro will create FX exposure.

Monetary assets and liabilities in the parent company by currency of denomination			
Foreign currency exposures			
'000			
Year end 31/12/2006	£	\$	€
Cash and cash equivalents	200	300	0
Accounts receivable	350	400	0
Trade payables	(220)	(130)	0
Borrowing	(150)	0	0
Total currency of denomination	180	570	0

(including intragroup exposures in foreign currency)

Euro denominated items do not create any FX exposure, since the company's functional currency is Euro. Therefore, this column is set to zero. The remaining amounts are then converted into Euro using the closing rate on the balance sheet date and these are the amounts that will be exposed to changes in foreign currency rates.

Monetary assets/liabilities from the above table converted into Euro			
Foreign currency exposures			
'000			
Year end 31/12/2006	£	€	€
Cash and cash equivalents	299	227	0
Accounts receivable	522	303	0
Trade payables	(328)	(98)	0
Borrowing	(224)	0	0
Total functional currency	269	432	0

In the last table below, the columns have been reordered to correspond with the group summary below. We carry forward only the exposure on the net monetary position into the group summary that is expressed in the presentation currency of the group (euro).

Presentation currency of the group			
Year end 31/12/2006			
'000	€	£	£/\$
Total expressed in presentation currency	432	269	0

The same process needs to be completed for the UK and the North American subsidiaries.

UK subsidiary (£ functional currency)

The UK subsidiary has a functional currency of Sterling and is therefore exposed in terms of Euro and US Dollar. The exposure between €/£ and £/\$ is analysed.

Monetary assets and liabilities in the UK subsidiary by currency of denomination			
Foreign currency exposures			
'000			
Year end 31/12/2006	£	\$	€
Cash and cash equivalents	0	120	120
Accounts receivable	0	80	200
Trade payables	0	(150)	(350)
Borrowing	0	0	(400)
Total currency of denomination	0	50	(430)

(including intragroup exposures in foreign currency)

Sterling denominated items do not create any FX exposure, since the company's functional currency is £. Therefore, this column is set to zero. The remaining amounts are then converted into Sterling and these are the amounts that will be exposed to changes in foreign currency rates.

Monetary assets/liabilities from the above table converted into Sterling			
Foreign currency exposures			
'000			
Year end 31/12/2006	£	£/\$	€
Cash and cash equivalents	0	61	80
Accounts receivable	0	41	134
Trade payables	0	(76)	(235)
Borrowing	0	0	(268)
Total currency of denomination	0	26	(289)

Summary of the UK subsidiary				
Year end 31/12/2006	'000	€	£	£/\$
Total functional currency (Sterling)	0	289	26	0
Total presentation currency (Euro)	0	430	38	0

In the last table, the columns have been reordered to correspond with the group summary below. We also invert the €/£ exposure from -289 to +289 so that the Group summary contains comparable results for all entities (i.e. a depreciation of £ against € consistently results in a translation gain on £ assets and a translation loss on £ liabilities).

In the last step, the exposure is translated from the functional currency (£) to presentation currency (€), using the closing rate. The last line is carried forward into the group summary.

case study C. continued ►

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Example sensitivity analysis showing how these risks might be calculated

North American subsidiary (\$ functional currency)

The North American subsidiary has a functional currency of US Dollar and is therefore exposed in terms of Euro and Sterling. The exposure between €/£ and £/\$ is analysed.

Monetary assets and liabilities in the North American subsidiary by currency of denomination			
Foreign currency exposures '000			
Year end 31/12/2006	£	\$	€
Cash and cash equivalents	80	0	140
Accounts receivable	130	0	250
Trade payables	(170)	0	(400)
Borrowing	0	0	(500)
Total currency of denomination	40	0	(510)

Dollar denominated items do not create any FX exposure, since the company's functional currency is US Dollar. Therefore, this column is set to zero. The remaining amounts are then converted into US Dollar and these are the amounts that will be exposed to changes in foreign currency rates.

Monetary assets/liabilities from the table above converted into US dollar			
Foreign currency exposures '000			
Year end 31/12/2006	£/\$	\$	€
Cash and cash equivalents	158	0	185
Accounts receivable	256	0	330
Trade payables	(335)	0	(528)
Borrowing	0	0	(660)
Total currency of denomination	79	0	(673)

(including intragroup exposures in foreign currency)

In the table above, we calculate the exposure of FX denominated monetary items against the entity's functional currency (\$).

Summary of the North American subsidiary			
Year end 31/12/2006	'000	€/\$	£/\$
Total functional currency (US dollar)	673	0	(79)
Total presentation currency (Euro)	510	0	(60)

In the last table, the columns have been reordered to correspond with the group summary below. We also invert the €/£ exposure from -673 to +673 so that the group summary contains comparable results for all entities (i.e. a depreciation of \$ against € consistently results in a translation gain on \$ assets and a translation loss on \$ liabilities).

The same applies to the £/\$ exposure; the £/\$ exposure was transposed from +79 to -79 for the same reason.

In the last step, the exposure is translated from the functional currency (\$) to presentation currency (€), using the closing rate. The last line is carried forward into the group summary.

Group summary:

The table below summarises the FX exposure on the net monetary position of each group entity against its respective functional currency, expressed in the group's presentation currency.

Group notes				
Year end 31/12/2006	'000	€/\$	£/\$	£/\$
Parent		432	269	0
UK Company		0	430	38
US Company		510	0	(60)
Total		942	699	(22)

The reasonable shifts in exchange rates below are based on historic volatility.

If the €/£ rates moved by +/- 7.22%, €/£ rates moved by +/- 4.33% and if the £/\$ rates moved by +/- 12.16% then the effect on profit/loss would be as follows:

Group notes				
Year end 31/12/2006	'000	€/\$ In €	£/\$ In €	£/\$ In €
Total in the consolidated financial statements		942	699	(22)
Reasonable shift		7.22%	4.33%	12.16%
Total effect on Profit of +ve movements		68	30	(3)
Total effect on Profit of -ve movements		(68)	(30)	3

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