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IFRS News

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IFRS 7 – potential impact of market risks

The potential impact of market risks is one of the more significant challenges that companies need to prepare for under IFRS 7, Financial Instruments: Disclosures. This the supplement illustrates how these risks might be calculated.

The sensitivity analysis in this supplement 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 case study below:

- suggests a way in which an entity might calculate the amounts to be disclosed in its sensitivity analysis;
- illustrates how the analysis can be disclosed in the financial statements of the entity; and
- provides an illustration of how to calculate and present sensitivity analysis relating to foreign currency exposure.

IFRS 7 is relevant for all entities, not just financial institutions. This is why we have chosen to illustrate the above with case studies for:

- a manufacturing company; and
- a multinational group with different functional currencies.

Sensitivity analysis – manufacturing company

Case study

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; 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 on p2. All amounts are expressed in C'000.

		Interest rate (IR) risk				Foreign exchange rate risk				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%	
	Carrying amount)	Profit	Other move-ments in equity	Profit	Other move-ments in equity	Profit	Other move-ments in equity	Profit	Other move-ments in equity	Profit	Other move-ments in equity	Profit	Other move-ments in equity
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)**

Assumptions relating to the table on p2 and calculations

a) The figures in brackets are debits and therefore losses in the income statement and decreases in equity.
b) The percentage calculations below have been rounded off to three decimal places.

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 x 0.787] = USD 1,333k).
   Sensitivity to a +/- 10bp movement in C market interest rates: +/- [C3,085k x 10bp/100/100] = C3k / C(3k).
   Sensitivity to a +/- 60bp movement in USD market interest rates: [C1,050k x 60bp/100/100] = C6k / C(6k).
   Sensitivity to a + 11% movement in foreign exchange rate USD:C: [(USD1,333k x 0.874) – C1,050k] = C(115k). Similarly for a -11% movement in foreign exchange rates: [(USD1,333k x 0.7001) – C1,050k] = C115k.*

2. Accounts receivables include C150k of USD-denominated receivables (USD amount at year-end = [C150k x 0.787 = USD 190k).
   Sensitivity to a +11% movement in foreign exchange rates USD:C: [USD 190k x 0.874] - C150k = C(17k). Similarly for a -11% movement in foreign exchange rates: [(USD 190kx0.700) – 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 x 5%] = C38k/C(38k).
   Sensitivity to a +/-5% movement in the Dow Jones equity price index: +/- [C550k x 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 x 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. If it had, 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 x 0.787] = USD 317k).
   Sensitivity to a + 11% movement in foreign exchange rate USD:C: [(USD317kx 0.874) – C250k] = C28k. Similarly for a -11% movement in foreign exchange rates: [(USD317k x 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 x 0.787] =USD 2,248k).
   Sensitivity to a +/- 10bp movement in C market interest rates: [C10,165k x 10bp/100/100] = C(10k) / C10k.
   Sensitivity to a +/- 60bp movement in USD market interest rates: [C1,770k x 60bp/100/100] = C(11k) / C11k.
   Sensitivity to a +11% movement in foreign exchange rate USD:C: [(USD2,248k x 0.874) – C1,770k] = C195k. Similarly for a -11% movement in foreign exchange rates: [(USD2,248k x 0.700) – C1,770k] = C(195k).

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 footnote 6.

* 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 been 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.

Illustration of disclosures in the financial statements

The figures in the case study above can be disclosed in the financial statements as follows:

Interest rate risk
At 31 December 2006, post-tax profit for the year would have been C3k (2005: C15k) lower/higher 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. This would have been 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, post-tax profit for the year would have been C96k (2005: C72k) higher if C had strengthened by 11% against USD with all other variables held constant. This would have been 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.

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

Price risk
The table below summarises the impact of increases/decreases of 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/ decreased by 5% with all other variables held constant and all the entity's equity instruments moved according to the historical correlation with the index.

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	-	-

Sensitivity analysis – multinational group with different functional currencies

The example below illustrates one possible way of calculating and presenting sensitivity analysis relating to foreign currency exposure in a multinational group with different functional currencies.

It only shows the impact of foreign currency risk on a group's consolidated profit and loss. 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 in the eurozone and has a euro (€) 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 the 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 is to highlight all the monetary amounts in each entity that are exposed to foreign currency movements.

Parent company (€ functional currency)

The parent company's functional currency is the euro. 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			
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, as this is the company's functional currency This column is set to zero. The remaining amounts are then converted into euros using the closing rate on the balance sheet date. These are the amounts that will be exposed to changes in foreign currency rates.

Monetary assets/liabilities from the above table converted into euros

Foreign currency exposures			
Year end 31/12/2006	**€/£**	**€/$**	**€**
Cash and cash equivalents	298.51	227.27	0.00
Accounts receivable	522.39	303.03	0.00
Trade payables	-328.36	-98.48	0.00
Borrowing	-223.88	0.00	0.00
Total functional currency	**268.66**	**431.82**	**0.00**

The columns in the table below have been reordered to correspond with the group summary. Only the exposure on the net monetary position has been carried forward 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	**€/$**	**€/£**	**£/$**
Total expressed in presentation currency	**431.82**	**268.66**	**0.00**

The same process is 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 the euro and US dollar. The exposure between €/£ and £/$ is analysed below.

Monetary assets and liabilities in the UK subsidiary by currency of denomination

Foreign currency exposures			
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, as this is the company's functional currency. This column is set to zero. The remaining amounts are then converted into sterling; 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			
Year end 31/12/2006	**£**	**£/$**	**€/£**
Cash and cash equivalents	0.00	60.91	80.40
Accounts receivable	0.00	40.61	134.00
Trade payables	0.00	-76.14	-234.50
Borrowing	0.00	0.00	-268.00
Total functional currency	**0.00**	**25.38**	**-288.10**

In functional currency of the UK subsidiary (sterling)

Year end 31/12/2006	**€/$**	**€/£**	**£/$**
Total functional currency	**0.00**	**288.10**	**25.38**
Total presentation currency	**0.00**	**430.00**	**37.88**

In the table directly above, the columns have been reordered to correspond with the group summary. The €/£ exposure has been inverted from -288.10 to +288.10 so that the group summary contains comparable results for all entities (ie, 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.

North American subsidiary ($ functional currency)

The North American subsidiary has a US dollar functional currency. It is 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			
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 functional currency	**40**	**0**	**-510**

(including intragroup exposures in foreign currency)

Dollar-denominated items do not create any FX exposure, as the company's functional currency is the US dollar. This column is set to zero. The remaining amounts are then converted into US dollars. These are the amounts that will be exposed to changes in foreign currency rates.

Monetary assets/liabilities from the table above converted into US dollars

Foreign currency exposures			
Year end 31/12/2006	**£/$**	**$**	**€/$**
Cash and cash equivalents	157.61	0.00	184.80
Accounts receivable	256.12	0.00	330.00
Trade payables	-334.93	0.00	-528.00
Borrowing	0.00	0.00	-660.00
Total functional currency	**78.81**	**0.00**	**-673.20**

(including intragroup exposures in foreign currency)

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

In functional currency of the North American subsidiary (US dollar)

Year end 31/12/2006	€/$	€/£	£/$
Total functional currency	**673.20**	**0.00**	**-78.81**
Total presentation currency	**510.00**	**0.00**	**-59.70**

In the table directly above, the columns have been reordered to correspond with the group summary. The €/$ exposure has been inverted from -673.20 to +673.20 so that the group summary contains comparable results for all entities (ie, 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 +78.81 to -78.81 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	€/$	€/£	£/$
Parent	431.82	268.66	0.00
UK Company	0.00	430.00	37.88
US Company	510.00	0.00	-59.70
Total	**941.82**	**698.66**	**-21.82**

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

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

Group notes Year end 31/12/2006	€/$ In €	€/£ In €	£/$ In €
Total in the consolidated financial statements	**941.82**	**698.66**	**-21.82**
Reasonable shift	**7.22%**	**4.33%**	**12.16%**
Total effect on profit of +ve movements	**67.99**	**30.25**	**-2.65**
Total effect on profit of –ve movements	**-67.99**	**-30.25**	**2.65**

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