STAFF PAPER

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Project	**IAS 12 *Income Taxes*—Recognition of deferred taxes for the effect of exchange rate changes**		
Paper topic	Appendix D—Example		
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Purpose of Appendix D

1. The purpose of Appendix D is to provide an example to help in better understanding of the issue related to recognition of deferred taxes arising due to the effect of exchange rate changes on the tax base of non-monetary assets and liabilities of an entity.

2. We think the example given in this paper would help us to provide more clarity on:

   (a) the interaction that deferred tax has with current tax;

   (b) the impact of recognising (or not) deferred tax on the effective tax rates; and

   (c) what information recognition of deferred tax on the impact of foreign exchange rate changes in the financial statements provides to a user.

3. We have developed the example by considering two scenarios:

   (a) Scenario 1—Single asset with one change in exchange rate.

   (b) Scenario 2—Multiple assets with volatile exchange rates.

Fact pattern

4. Entity A is a company domiciled in Country L where the local currency is LC.

5. On the basis of an assessment of IAS 21 *The Effects of Changes in Foreign Exchange Rates*, Entity A has concluded that its functional currency is FC and not the local currency, LC.

6. The presentation currency is FC.

7. Entity A's taxable profit or loss (and consequently the tax base of its assets and liabilities) are determined in LC.

8. Entity A purchased an item of property, plant and equipment (PPE) on 1 January 2011 at a cost of LC 100 when the exchange rate was 1 LC = 1 FC. Accordingly, the cost of the PPE in terms of FC is also 100.

9. All assets are purchased on the first day of each year. A full year's depreciation is charged.

10. The useful life of the asset for financial reporting purpose is 5 years with a residual value of zero. Accordingly, depreciation for financial reporting purposes is FC 20 for each of the years.

11. The deprecation for tax purposes is 20 per cent per annum with a nil tax charge on sale of the asset. Accordingly, tax depreciation is LC 20 for each of the years.

12. The applicable tax rate on taxable income is 20 per cent.

13. Average foreign exchange rates are determined based on the rates prevailing on the first and last day of the financial year.

14. Equity is stated at historical cost.

15. Revenue and cost of sales are assumed for each year and scenario.

16. Current tax is not paid at the end of each year, and hence has been accrued.

17. All other requirements in IFRS are ignored in the example.

In this paper LC denotes Local Currency and FC denotes Functional Currency

Methodology

18. For each scenario, we have constructed a set of financial statements consisting of the statement of financial position and statement of profit or loss. For each of the scenarios, the financial statements are constructed for 5 years that coincides with the useful life of the PPE acquired on 1 January 2011.

19. The main purpose of constructing the financial statements is to determine the 'Net effective tax rate'. This is computed by dividing the aggregate of current and deferred tax amounts (as reported in the statement of profit or loss) by profit before taxes (PBT).

20. The current tax expense is computed in local currency based on income and expenses determined in local currency. It is then translated to the functional currency at the average foreign exchange rate.

21. The deferred tax asset or liability is determined by comparing the carrying amount of the asset for financial reporting purposes with the functional currency equivalent of the local currency tax base of the asset. The tax base in FC is determined by multiplying the tax base of the asset in LC by the exchange rate prevailing on the reporting date.

22. We think that Scenario 1 is helpful in understanding the issue and demonstrates all the three aspects mentioned in paragraph 2 above.

23. We have analysed Scenario 1 in detail and our conclusions are largely based on this scenario. We believe that the conclusions we derive from this scenario are applicable to the other scenario, although that may not be immediately evident because of the complexity of the fact pattern in that scenario.

24. Specific observations, if any, in other scenario are highlighted.

Scenario 1—Single asset with one change in exchange rate

25. In this scenario, there is only one change in the exchange rate during the life of the asset. The exchange rate changes on 01 January 2013 to 1 LC = 0.60 FC.

In this paper LC denotes Local Currency and FC denotes Functional Currency

26. Table 1 provides the statement of financial position and statement of profit or loss of Entity A for five years commencing from 01 January 2011.

Table 1

YEAR	**1**	**2**	**3**	**4**	**5**
YEAR ending 31 December	**2011**	**2012**	**2013**	**2014**	**2015**
Exchange rate LC:FC	1:1.00	1:1.00	1:0.60	1:0.60	1:0.60
Statement of profit or loss (in FC)					
Revenue	100.00	125.00	168.75	194.06	203.77
Cost of sales	(45.00)	(63.75)	(82.69)	(102.85)	(93.73)
Depreciation	(20.00)	(20.00)	(20.00)	(20.00)	(20.00)
Profit before tax (PBT)	35.00	41.25	66.06	71.21	90.03
Tax expense/(income)					
Current tax expense **[See Note 2]**	7.00	8.25	14.01	15.84	19.61
Deferred tax expense/(income)	-	-	3.20	(1.60)	(1.60)
Total tax expense/(income)	7.00	8.25	17.21	14.24	18.01
Profit after tax	28.00	33.00	48.85	56.97	72.03
Statement of financial position (in FC)					
Property, plant and equipment (PPE)	100.00	100.00	100.00	100.00	100.00
Accumulated depreciation	(20.00)	(40.00)	(60.00)	(80.00)	(100.00)
Net carrying amount of PPE	80.00	60.00	40.00	20.00	-
Cash and cash equivalents	55.00	116.25	202.31	293.52	403.56
Total assets	**135.00**	**176.25**	**242.31**	**313.52**	**403.56**
Equity	100.00	100.00	100.00	100.00	100.00
Net income	28.00	61.00	109.85	166.82	238.84
Current tax liability	7.00	15.25	29.26	45.10	64.72
Deferred tax liability	-	-	3.20	1.60	-
Total equity and liabilities	**135.00**	**176.25**	**242.31**	**313.52**	**403.56**
Net effective tax rate [See Note 1]	**20.00%**	**20.00%**	**26.05%**	**20.00%**	**20.00%**

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27. Table 2 provides a computation of current income tax expense for each of the 5 years.

Table 2

YEAR	**1**	**2**	**3**	**4**	**5**
YEAR ending 31 December	**2011**	**2012**	**2013**	**2014**	**2015**
Exchange rate LC:FC	1:1.00	1:1.00	1:0.60	1:0.60	1:0.60
Average foreign exchange rate during the year (*LC:FC)*	1:1.00	1:1.00	1:0.80	1:0.60	1:0.60
Revenue (LC)	100.00	125.00	210.94	323.44	339.61
Cost of sales (LC)	(45.00)	(63.75)	(103.36)	(171.42)	(156.22)
Tax depreciation (LC)	(20.00)	(20.00)	(20.00)	(20.00)	(20.00)
Taxable income (LC)	35.00	41.25	87.58	132.02	163.39
Current tax expense @ 20% (LC)	7.00	8.25	17.52	26.40	32.68
Current tax expense in FC [See Note 2]	**7.00**	**8.25**	**14.01**	**15.84**	**19.61**

28. Table 3 provides a computation of deferred income tax charge or credit for each of the 5 years.

Table 3

YEAR	**1**	**2**	**3**	**4**	**5**
YEAR ending 31 December	**2011**	**2012**	**2013**	**2014**	**2015**
Exchange rate LC:FC	1:1.00	1:1.00	1:0.60	1:0.60	1:0.60
Carrying value of PPE for financial reporting purposes (FC)	80.00	60.00	40.00	20.00	-
Tax base of PPE (LC)	80.00	60.00	40.00	20.00	-
Tax base of PPE (FC)	80.00	60.00	24.00	12.00	-
Taxable temporary difference (FC)	-	-	16.00	8.00	-
Deferred tax liability (FC)	-	-	3.20	1.60	-
Deferred tax expense/(income) (FC)	**-**	**-**	**3.20**	**(1.60)**	**(1.60)**

What do we find in the example?

29. The main observation from this example is the impact of exchange rate changes on the effective tax rate.

30. The net effective tax rate in our example when there are no changes in exchange rate should equal the tax rate used to determine current taxes; that is, 20 per cent.

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31. In Year 3 in the example the net effective rate increases to 26.05 per cent. This is due to recognition of deferred tax expense of FC 3.20 in that year. The taxable temporary difference of FC 16 results in deferred tax expense of FC 3.20. We have further analysed the increase in net effective tax rate and related aspects in the following paragraphs.

Note 1

Disaggregated net effective tax rate

Table 4

YEAR	**1**	**2**	**3**	**4**	**5**
YEAR ending 31 December	**2011**	**2012**	**2013**	**2014**	**2015**
Exchange rate LC:FC	1:1.00	1:1.00	1:0.60	1:0.60	1:0.60
Effective tax in value					
Current tax expense	7.00	8.25	14.01	15.84	19.61
Deferred tax expense / (income)	-	-	3.20	(1.60)	(1.60)
Net effective tax	**7.00**	**8.25**	**17.21**	**14.24**	**18.01**
Effective tax in percentage					
Current tax (See Note 2)	20.00%	20.00%	21.21%	22.25%	21.78%
Deferred tax	0.00%	0.00%	4.84%	-2.25%	-1.78%
Net effective tax rate	**20.00%**	**20.00%**	**26.05%**	**20.00%**	**20.00%**

32. In Table 4 net effective tax rate is disaggregated to current and deferred tax rates. We note that the deferred tax charged in Year 3 is reversed in Years 4 and 5.

33. The exchange rate movement in Year 3 results in an increase in current tax charge in Years 4 and 5, as shown by the increase in the effective tax rate of current tax from 20 per cent to 22.25 per cent in Year 4 and to 21.78 per cent in Year 5.

34. The event (ie change in the foreign exchange rate) that has caused this increase occurred in Year 3. The consequence of recognising deferred tax in Year 3 is to reflect the increase in future current tax in the year the event has occurred ie Year 3. Consequently, the overall effective tax rate (ie considering current and deferred tax) increases to 26.05 per cent in Year 3 and returns to 20 per cent in Year 4.

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Note 2

Why does current tax increase?

35. The question, in this context is, what makes the current income tax rate increase to 22.25 per cent in Year 4? To understand this aspect, we refer to Table 5 below:

Table 5

YEAR	**1**	**2**	**3**	**4**	**5**
YEAR ending 31 December	**2011**	**2012**	**2013**	**2014**	**2015**
Exchange rate LC:FC	1:1.00	1:1.00	1:0.60	1:0.60	1:0.60
Current tax at 20% of PBT	7.00	8.25	13.21	14.24	18.01
Current tax expense as per the Statement of profit or loss	7.00	8.25	14.01	15.84	19.61
Difference	**-**	**-**	**(0.80)**	**(1.60)**	**(1.60)**
Difference in current tax is attributable to:					
Increase/(decrease) in depreciation benefit due to exchange rate changes **(See table below)**	-	-	**(4.00)**	**(8.00)**	**(8.00)**
Tax effect at 20%	**-**	**-**	**(0.80)**	**(1.60)**	**(1.60)**

Increase / (decrease) in depreciation benefit due to exchange rate changes					
Average foreign exchange rate during the year (*LC:FC)*	1:1.00	1:1.00	1:0.80	1:0.60	1:0.60
Tax depreciation in LC	20.00	20.00	20.00	20.00	20.00
Tax depreciation in FC (A)	20.00	20.00	16.00	12.00	12.00
Depreciation as per the Statement of profit or loss (B)	20.00	20.00	20.00	20.00	20.00
Increase / (decrease) in depreciation benefit in terms of FC (A-B)	**-**	**-**	**(4.00)**	**(8.00)**	**(8.00)**

36. Table 5 explains why current tax has increased. The current tax recognised in the statement of income is higher than what it would have otherwise been if PBT and taxable income were to be of the same amount. In Year 4, the current tax expense is higher by FC 1.60. In terms of local currency, the entity continues to determine its income tax liability, applying a rate of 20 per cent.

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37. The difference of FC 1.60 arises because of the impact of exchange rate changes on the tax depreciation benefit available to the entity. The depreciation considered for financial reporting and tax purposes is FC 20 and LC 20 respectively. However, because of appreciation of local currency against functional currency, the entity does not receive a benefit equivalent to LC 20 in terms of functional currency. The entity receives a benefit of only FC 12 (ie LC 20 multiplied by the average exchange rate prevailing during the year of 0.60).

38. As a result of the change in exchange rate, the entity has lost a benefit of FC 8 (ie LC 20 multiplied by 0.40), which results in a current tax of FC 1.60 at a tax rate of 20 per cent. We think this reduction in the amount of benefit available to the entity is a real economic loss in terms of functional currency. Because the benefit has reduced, the taxable income, in terms of FC, has increased, thereby increasing the current income taxes.

Note 3

What happens if the deferred tax is not recognised?

39. Table 6 below shows the effective tax rates if the deferred tax is simply not recognised.

Table 6

YEAR	**1**	**2**	**3**	**4**	**5**
YEAR ending 31 December	**2011**	**2012**	**2013**	**2014**	**2015**
Exchange rate LC:FC	1:1.00	1:1.00	1:0.60	1:0.60	1:0.60
Effective tax in value					
Current tax expense	7.00	8.25	14.01	15.84	19.61
Deferred tax expense/(income)	-	-	-	-	-
Net effective tax	**7.00**	**8.25**	**14.01**	**15.84**	**19.61**
Effective tax in percentage					
Current tax	20.00%	20.00%	21.21%	22.25%	21.78%
Deferred tax	-	-	-	-	-
Net effective tax rate	**20.00%**	**20.00%**	**21.21%**	**22.25%**	**21.78%**

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40. The consequence of not recognising deferred tax is that the tax effect on foreign exchange movement in 2013 would be spread over the remaining life of the asset instead of being reflected in the year in which the exchange rate change has occurred.

Conclusion

41. The change in foreign exchange rate is an economic event that affects the entity. Once the foreign exchange rate change has occurred, it is a past event. The change in foreign exchange rate affects the entity through a change in future tax depreciation available to the entity in terms of functional currency. This is a real economic loss to the entity.

42. The foreign exchange rate changes affect future current tax. Deferred tax is a way of reflecting that change in the year the foreign exchange rate change has occurred.

43. We think recognition of deferred tax for the impact of foreign exchange rate changes on tax depreciation provides useful information to users of financial statements, because:

    (a) it reports the impact changes in foreign exchange rates have on tax amounts.

    (b) recognition of deferred taxes in the year that the exchange rate changes indicates to users that future current taxes will change. In our example, recognising deferred tax in Year 3 informs users of financial statements that the current tax in Years 4 to 5 will be higher than it would otherwise have been.

44. Consequently, we think that not recognising such deferred tax could produce inappropriate net effective tax rates.

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Scenario 2—Multiple assets with volatile exchange rates

45. In addition to the fact pattern described above, we have assumed the following in this scenario:

    (a) volatile foreign exchange rates all through the life of the asset; and

    (b) PPE costing the local currency equivalent of FC 100 is acquired in each of the years.

46. Table 7 provides the statement of financial position and statement of profit or loss of Entity A for 5 years commencing from 01 January 2011.

Table 7

YEAR	**1**	**2**	**3**	**4**	**5**
YEAR ending 31 December	**2011**	**2012**	**2013**	**2014**	**2015**
Exchange rate LC:FC	1:1.20	1:1.80	1:1.26	1: 0.91	1: 0.63
Statement of profit or loss (in FC)					
Revenue	100.00	133.30	177.69	236.86	315.73
Cost of sales	(45.00)	(67.98)	(87.07)	(125.54)	(145.24)
Depreciation	(20.00)	(40.00)	(60.00)	(80.00)	(100.00)
Profit before tax (PBT)	35.00	25.32	30.62	31.32	70.50
Tax expense/(income)					
Current tax expense	6.60	2.06	3.50	8.45	20.91
Deferred tax expense/(income)	(3.20)	(14.40)	19.72	10.55	5.35
Total tax expense/(income)	3.40	(12.34)	23.22	19.00	26.26
Profit after tax	31.60	37.65	7.40	12.32	44.23
Statement of financial position (in FC)					
Property, plant and equipment (PPE)	100.00	200.00	300.00	400.00	500.00
Accumulated depreciation	(20.00)	(60.00)	(120.00)	(200.00)	(300.00)
Net carrying amount of PPE	80.00	140.00	180.00	200.00	200.00
Cash and cash equivalents	55.00	20.32	10.94	22.26	92.76
Deferred tax asset	3.20	17.60	-	-	-
Total assets	**138.20**	**177.92**	**190.94**	**222.26**	**292.76**
Equity	100.00	100.00	100.00	100.00	100.00
Net income	31.60	69.25	76.65	88.97	133.20
Current tax liability	6.60	8.67	12.17	20.62	41.54
Deferred tax liability	-	-	2.12	12.67	18.02
Total equity and liabilities	**138.20**	**177.92**	**190.94**	**222.26**	**292.76**
Effective tax rate	**9.71%**	**-48.73%**	**75.84%**	**60.67%**	**37.26%**

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47. Table 8 provides a computation of current income tax expense for each of the 5 years.

Table 8

YEAR	**1**	**2**	**3**	**4**	**5**
YEAR ending 31 December	**2011**	**2012**	**2013**	**2014**	**2015**
Exchange rate LC:FC	1:1.20	1:1.80	1:1.26	1: 0.91	1: 0.63
Average foreign exchange rate during the year (LC:FC)	1:1.10	1:1.50	1:1.53	1:1.09	1:0.77
Revenue (LC)	90.91	88.87	116.14	218.30	410.04
Cost of sales (LC)	(40.91)	(45.32)	(56.91)	(115.70)	(188.62)
Tax depreciation (LC)	(20.00)	(36.67)	(47.78)	(63.65)	(85.63)
Taxable income (LC)	30.00	6.88	11.45	38.95	135.79
Current tax expense @ 20% (LC)	6.00	1.38	2.29	7.79	27.16
Current tax expense in FC	**6.60**	**2.06**	**3.50**	**8.45**	**20.91**

48. Table 9 provides a computation of deferred income tax charge or credit for each of the 5 years.

Table 9

YEAR	**1**	**2**	**3**	**4**	**5**
YEAR ending 31 December	**2011**	**2012**	**2013**	**2014**	**2015**
Exchange rate LC:FC	1:1.20	1:1.80	1:1.26	1: 0.91	1: 0.63
Carrying value of PPE for financial reporting purposes (FC)	80.00	140.00	180.00	200.00	200.00
Tax base of PPE (LC)	80.00	126.67	134.44	150.16	174.42
Tax base of PPE (FC)	96.00	228.00	169.40	136.64	109.88
Taxable / (deductible) temporary difference (FC)	(16.00)	(88.00)	10.60	63.36	90.12
Deferred tax liability/(asset) (FC)	(3.20)	(17.60)	2.12	12.67	18.02
Deferred tax expense/(income) (FC)	**(3.20)**	**(14.40)**	**19.72**	**10.55**	**5.35**

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Note 1

Disaggregated net effective tax rate

Table 10

YEAR	**1**	**2**	**3**	**4**	**5**
YEAR ending 31 December	**2011**	**2012**	**2013**	**2014**	**2015**
Exchange rate LC:FC	1:1.20	1:1.80	1:1.26	1: 0.91	1: 0.63
Effective tax in value					
Current tax expense	6.60	2.06	3.50	8.45	20.91
Deferred tax expense/(income)	(3.20)	(14.40)	19.72	10.55	5.35
Net effective tax	**3.40**	**(12.34)**	**23.22**	**19.00**	**26.26**
Effective tax in percentage					
Current tax	18.86%	8.15%	11.44%	26.98%	29.66%
Deferred tax	-9.14%	-56.88%	64.40%	33.68%	7.59%
Net effective tax rate	**9.71%**	**-48.73%**	**75.84%**	**60.67%**	**37.26%**

49. The observations made in paragraphs 32-34 are also applicable to Table 10 above. However, unlike in Table 4, the reversal of deferred tax in subsequent years is not clearly evident. This is because exchange rates change in each of the years and a new property, plant and equipment is also acquired in each of the years that have an impact on deferred tax expense or income recognised in respective years.

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Note 2

Why does current tax increase?

Table 11

YEAR **YEAR ending 31 December** *Exchange rate LC:FC*	**1** **2011** 1:1.20	**2** **2012** 1:1.80	**3** **2013** 1:1.26	**4** **2014** 1: 0.91	**5** **2015** 1: 0.63
Current tax at 20% of PBT	7.00	5.06	6.12	6.26	14.10
Current tax expense as per the Statement of profit or loss	6.60	2.06	3.50	8.45	20.91
Difference	**0.40**	**3.00**	**2.62**	**(2.19)**	**(6.81)**
Difference in current tax is attributable to:					
Increase / (decrease) in depreciation benefit due to exchange rate changes	**2.00**	**15.00**	**13.10**	**(10.94)**	**(34.07)**
Tax effect at 20%	**0.40**	**3.00**	**2.62**	**(2.19)**	**(6.81)**

Increase / (decrease) in depreciation benefit due to exchange rate changes					
Average foreign exchange rate during the year (LC:FC)	1:1.10	1:1.50	1:1.53	1:1.09	1:0.77
Tax depreciation in LC	20.00	36.67	47.78	63.65	85.63
Tax depreciation in FC (A)	22.00	55.00	73.10	69.06	65.93
Depreciation as per the Statement of profit or loss (B) **(See table below)**	20.00	40.00	60.00	80.00	100.00
Increase / (decrease) in depreciation benefit in terms of FC (A-B)	**2.00**	**15.00**	**13.10**	**(10.94)**	**(34.07)**

50. Similarly to our observations in paragraphs 36-38, we note that there is an increase or decrease in current tax resulting from an increase or decrease in depreciation benefit available to the entity in functional currency terms.

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Note 3

What happens if the deferred tax is not recognised?

51. Table 12 shows the effective tax rates if the deferred tax is simply not recognised.

Table 12

YEAR **YEAR ending 31 December** *Exchange rate LC:FC*	**1** **2011** 1:1.20	**2** **2012** 1:1.80	**3** **2013** 1:1.26	**4** **2014** 1: 0.91	**5** **2015** 1: 0.63
Effective tax rate in value					
Current tax expense	6.60	2.06	3.50	8.45	20.91
Deferred tax expense / (income)	-	-	-	-	-
Net effective tax	**6.60**	**2.06**	**3.50**	**8.45**	**20.91**
Effective tax rate in percentage					
Current tax	18.86%	8.15%	11.44%	26.98%	29.66%
Deferred tax	-	-	-	-	-
Net effective tax rate	**18.86%**	**8.15%**	**11.44%**	**26.98%**	**29.66%**

52. We think our observations made in paragraph 40 are also applicable to Table 12.

Conclusions

53. We think observations made in Scenario 1 also apply to this scenario. However, this is not immediately evident because of the complex fact pattern.

54. As concluded in paragraphs 41-44, we think that in a volatile scenario there is also a real economic loss or gain, arising because of the impact of foreign exchange rate changes that should be recognised in the financial statements. The volatile effective tax rate reflects the impact of volatile exchange rates on the tax numbers.

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