STAFF PAPER

Project	**Macro Hedge Accounting**
Paper topic	Valuation of the risk position (steps 1 and 2)
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Introduction

1.   The purpose of this paper is to provide a more detailed discussion of alternatives for the valuation of the risk position as briefly introduced with agenda paper 7A of the November IASB meeting. It relates to steps 1 and 2 explained there.

2.   It discusses a full fair value measurement approach for the risk position (step 1) in comparison to a valuation that is limited to fair value changes attributable to the hedged risk (step 2). The focus is on the differences in the financial statement information provided with both approaches. Also, alternatives for the determination of the fair value change attributable to the hedged risk (here interest rate risk) are discussed.

3.   There are no questions to the Board in this paper.

Full fair value versus risk management objective

4.   This section compares the full fair value measurement of the risk positions to an approach that is limited to the *hedged* interest rate risk. The focus is on the effect of non-interest[1] elements.

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[1] For the purpose of this paper references to 'non-interest' elements are to those aspects that are not part of the interest rate risk as managed by the entity (ie similar to the notion of a benchmark interest that excludes aspects such as individual credit spreads). This is solely for ease of reference in this paper notwithstanding that elements such as individual credit spreads are part of 'interest' as the notion is used in IFRSs. Further sub-elements of interest rate risk, eg prepayment risk, will be covered separately later in this project.

Full fair value measurement approach (step 1)

5.   A full fair value measurement approach for all transactions covered by a macro fair value model comprises also the measurement of non-interest elements that are not subject to interest rate risk management. This results from the fact that a full fair value is calculated by comparing the actual terms of a financial instrument with the current terms for the same transaction demanded by a potential buyer (or for the transfer of a liability). This is reflected in the discount rate used.

6.   The calculation of the interest rate of a loan or deposit comprises various elements. For example, a loan's contractual interest rate has to cover its funding cost (core interest rate) but also non-interest elements like credit risk or liquidity risk (in the meaning of fungible), which is referred to as the margin of the loan. Similar considerations apply to deposits.[2]

7.   In addition, it has to be considered that especially in the retail business a part of the margin earned is supposed to cover administrative expenses related to those products. This refers to expenses for aspects such as running branches with equipment and staff, hotlines for client requests or IT-systems. Those costs are not accounted for at fair value but rather on an accrual or cost basis. Also, the absolute amount of those costs varies dependent on the actual business model and related distribution channel.

Risk management objective (step 2)

8.   For a business model to originate or acquire financial instruments with the intent to generate net interest income (margin) by holding these instruments risk management's focus is to protect this margin against changes in interest rate risk. This does not address changes in the fair value of those instruments resulting from other elements than interest rate risk.

9.   This reflects the objective to balance the repricing risk resulting from fixed interest rate cash flows in a way that the calculated margin[3] is not at risk from changes in market interest rates. This reflects the described 'buy and hold'

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[2] See agenda paper 9A of the September 2011 IASB meeting as well as the Education Session with the IASB in June 2011 for a more detailed discussion of non-interest elements.

[3] 'Calculated margin' in this context represents the elements of the contractual interest rate of a financial instrument that are not covered by the benchmark interest rate used for risk management purposes.

business model.[4] Addressing the entire fair value risk of financial instruments would imply an objective to sell[5] those on a regular basis. This would also be in contradiction with the basis for 'amortised cost'-measurement according to IFRS 9.[6]

10. As a consequence risk management measures the considered risk positions for their interest rate risk only. There are various approaches available to achieve this. A common one is to base the valuation of the risk position on a benchmark interest rate. This might be a transfer price underlying the calculation of the terms of the respective financial instrument.

11. Assuming an otherwise perfect risk management approach, the result is that the calculated margin for each product accounted for is protected against changes in market interest rates, ie net interest income would exactly reflect that margin.

Accounting considerations

Conceptual discussion

12. Following the risk management approach would imply to treat interest rate risk as a separate component subject to hedge accounting. As a consequence the valuation of the risk position could be limited to fair value changes attributable to the hedged interest rate risk. This concept is already used today under IAS 39 that allows limiting the valuation of the hedged risk to changes in the benchmark interest rate.[7] To the extent that the transfer price or discount rate used by risk management for the measurement of the risk position qualifies as a benchmark interest rate this method can reflect the risk management approach.

13. In addition, an accounting solution that reflects the risk management approach would need to consider that the hedge objective is to protect a margin against

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[4] This is a typical retail business model in the banking industry given that a stable funding source (eg through demand deposits) is available. Otherwise funding gaps have to be closed through sales, securitisation transactions or wholesale funding. This can lead to a business model to 'originate and sell' rather than 'originate and hold'. Therefore even within the private customer sector the actual business activities may differ significantly from country to country. Those circumstances determine what hedge accounting solutions entities might need and have available to them.

[5] Or transfer in case of a liability.

[6] For this discussion optionality risk impacting interest rate risk resulting from prepayment options or demand deposits is excluded. This will be covered later in connection with discussions of a portfolio approach and setting layers. See steps 4 to 6 in agenda paper 7A of the November IASB meeting.

[7] See IAS 39.81.

interest rate changes rather than hedging a fair value risk. This is important when financial instruments priced at an interest rate below their benchmark are hedged (commonly referred to as the 'sub-Libor issue'). This aspect is covered in the second section about the determination of the benchmark interest rate.

Measurement alternatives

14. The following examples illustrate alternatives for the measurement of the risk position based on the following assumptions:

    (a) The starting point is a non-prepayable loan with a term of six years. The contractual interest rate is 6% which comprises the transfer price (benchmark interest rate) of 5% and a spread of 1% to cover administrative expenses. For simplification the example does not consider credit spreads or other margin elements.

    (b) The business unit enters into a transfer price transaction with asset liability management ('ALM') to lock in the margin of 1%. ALM enters into an interest rate swap to change the cash flow pattern of the (internal) transfer pricing transaction from fix to floating to match this with a floating rate funding transaction.

15. Those assumptions lead to the following cash flow pattern for the life-time of the loan:

End of Period	1	2	3	4	5	6
Market Rate (benchmark)	4.5%	4.0%	3.5%	3.0%	2.5%	2.0%
Business Unit						
Interest Income	6.0	6.0	6.0	6.0	6.0	6.0
Interest Expense (internal)	*(5.0)*	*(5.0)*	*(5.0)*	*(5.0)*	*(5.0)*	*(5.0)*
Net Interest Margin	1.0	1.0	1.0	1.0	1.0	1.0
Administrative Expenses	(1.0)	(1.0)	(1.0)	(1.0)	(1.0)	(1.0)
Profit or Loss	0.0	0.0	0.0	0.0	0.0	0.0
Asset Liability Management (ALM)						
Interest Income (internal)	*5.0*	*5.0*	*5.0*	*5.0*	*5.0*	*5.0*
Interest Expense[8]	(5.0)	(4.5)	(4.0)	(3.5)	(3.0)	(2.5)
Swap (pay fix, receive floating)[9]	0.0	(0.5)	(1.0)	(1.5)	(2.0)	(2.5)
Margin	0.0	0.0	0.0	0.0	0.0	0.0
Consolidated View						
Interest Income	6.0	6.0	6.0	6.0	6.0	6.0
Interest Expense	(5.0)	(4.5)	(4.0)	(3.5)	(3.0)	(2.5)
Net Interest Margin (unhedged)	1.0	1.5	2.0	2.5	3.0	3.5
Hedging Effect	0.0	(0.5)	(1.0)	(1.5)	(2.0)	(2.5)
Net Interest Margin (hedged)	1.0	1.0	1.0	1.0	1.0	1.0
Administrative Expenses	(1.0)	(1.0)	(1.0)	(1.0)	(1.0)	(1.0)
Profit or Loss	0.0	0.0	0.0	0.0	0.0	0.0

16. The table above shows that the interest rate risk management strategy leads to a protected net interest rate margin of 1% for the entire term of the loan independent from changes in market interest rates. Under the assumption that the administrative expenses are stable for the entire term as well this would always

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[8] The interest expense is determined by the market rate at the end of the respective preceding period.

[9] The net payment is determined by the market rate at the end of the respective preceding period.

lead to a balanced profit or loss. In other words, the business unit and therefore the entire bank retains the risk that increasing administrative expenses lead to a negative result. However, potentially negative effects from changes in market interest rates (the benchmark interest rate used for the calculation of the loan's terms) do not have an effect.

17. For an analysis of alternatives for the valuation of the loan it is assumed that after the first period the market interest rate (benchmark) declined to 4.5%. At the same time the 'market' spread calculated for a similar loan would be 0.8%. This leads to a corresponding interest rate of 5.3% for the loan as of the balance sheet date. A buyer of the loan would demand a yield of 5.3% which is reflected in the discount rate used for calculating the full fair value.

18. In respect of the accounting treatment at the end of the first period the following alternatives apply:

   (a) **Alternative 1:** Full fair value measurement of the loan, which reflects the change in market interest rates including the decline in spreads taken for administrative expenses. **Cash flows based on 6% are discounted at the current reference market rate, eg at the end of period 1 5.3% (4.5% + 0.8%).**

   (b) **Alternative 2:** Follow the risk management approach and take the transfer pricing transaction as basis for the measurement of the hedged risk position. **Cash flows based on 5% are discounted at the current benchmark rate, eg at the end of period 1 4.5%.** This approach corresponds with the valuation of the fixed leg of the swap in this example.

   (c) **Alternative 3:** Calculate the fair value change attributable to the hedged risk on the basis of the contractual cash flows of the loan discounted with the current benchmark rate adjusted for the original locked-in margin. **Cash flows based on 6% are discounted at the current benchmark rate plus the original margin of 1% (eg at the end of period 1 5.5%, which is the current benchmark rate of 4.5% adjusted by the original margin of 1%).**

(d)   **Alternative 4:** Calculate the fair value change attributable to the hedged risk on the basis of the contractual cash flows of the loan discounted with the current benchmark rate (without any adjustments). **Cash flows based on 6% are discounted at the current benchmark rate, eg at the end of period 1 4.5%.** This creates a measurement difference on day 1 that is then amortised (in the example below—for other alternatives see paragraph 21).

19.   The results of the alternatives *at the end of the first period* can be summarised as follows:

	Alt. 1	Alt. 2	Alt. 3	Alt. 4
Value beginning of period	100.0	100.0	100.0	105.1
Value end of period	103.0	102.2	102.1	106.6
Change in value	3.0	2.2	2.1	1.5
Amortisation of 'day 1-difference'	-	-	-	0.7
Valuation effect of the period	3.0	2.2	2.1	2.2
Swap valuation (fixed leg)[10]	(2.2)	(2.2)	(2.2)	(2.2)
Net valuation effect of the period	0.8	0.0	(0.1)	0.0

20.   The comparison shows that alternatives 2 to 4 lead to similar results in respect of the overall volatility. However, only alternative 2 that is based on the transfer pricing transaction exactly matches the fixed leg of the swap[11] and therefore reflects the risk management view (in the absence of any valuation impacts from the floating leg or counterparty risk). For alternatives 3 and 4 remaining volatility results from discounting and unwinding effects. This is because of the measurement being based on the actual cash flow profile of the hedged instrument

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[10] The consideration of only the fixed leg assumes a 'perfect' floating leg with a value of 100 in this example (for simplification). The valuation effect of the floating leg of interest rate swaps was briefly explained in agenda paper 7A of the November 2011 IASB meeting.

[11] In this example—this is not to say that the risk position would simply be assumed to perfectly match the terms of a derivative used as a hedge.

(as used for the full fair value calculation). The fact that these cash flows include non-interest elements is mostly compensated through the adjustment of the discount rate (alternative 3) or an amortisation of the 'day 1-difference' (alternative 4).

21.   The 'day 1-difference' under **alternative 4** actually represents the present value of the locked-in margin discounted at the benchmark interest rate. Regarding the treatment of that effect three alternatives could be considered:

(a)   Immediate recognition in profit or loss.

(b)   Deferral within the financial statements.

(c)   Off-balance sheet tracking for the appropriate calculation of the valuation effect.

22.   The immediate recognition in profit or loss would be a breach of the principle that the initial recognition of a financial instrument should be at fair value. In addition, this difference ('gain') could not be considered an indicator for the performance of the entity in this period. Although it represents the present value of the margin locked in with granting the loan it has to be considered that there are offsetting expenses in future periods that the margin is supposed to cover. Therefore this gain does not represent a profit of the period of initial recognition.

23.   Similar considerations apply to the deferral within the financial statements. A deferred income position would offset the loan valuation above its initial transaction price (fair value). It would therefore represent the (unamortised) margin originally locked in. This is an indicator for future profit to be recognised but would only provide useful additional information when applied consistently for all positions, which would be a significant conceptual change. Furthermore it would create two offsetting exemptions from existing accounting principles: amended initial measurement of the financial instrument offset by a fictitious deferred income position.

24.   This leaves the third alternative, which is to track the difference between the valuation and the carrying value off-balance sheet and taking it into account for the calculation of the subsequent valuation of the risk position.

25.   The full fair value measurement approach (**alternative 1**) creates an additional effect of 0.8 for the first period mainly representing a gain resulting from lower

market margins. Basically, it represents the present value of the excess margin earned for the coverage of administrative expenses in comparison to the current market expectation. As the fair value is an indicator for the sales price of the loan this profit could be realised by a sale.

26. In a business model of originating new loans and selling them afterwards this fair value gain would be an indicator for the performance of the current period. This is because this sales price would most likely be realised in the near future as there are no capacities to manage the loans on the own books.[12] Consequently no administrative expenses for a continued servicing would occur.

27. On the other hand, in a business model that is based on an 'originate and hold' business model this fair value gain has rather the nature of a pure opportunity gain (ie what if the business model would be to sell). The information that the loan could be sold at a higher price would only become relevant when the business model is changed. Otherwise the gain reported in the first period will only lead to losses in future periods resulting from the pull-to-par effect.

28. Theoretically the market's lower margin for administrative expenses could be seen as an indicator that the cost structure of the bank holding the loan is too high. However, this might be because of different business strategies (eg differences in client service levels) that imply deviating cost structures. If the indicator is right and the cost structure is in fact too high this would be a threat to profits from future transactions (no possibilities to place new business at cost-covering terms). One-sided accounting of valuing the loans leading to a gain would not provide that message. For that a compensating 'fair value measurement' of the future administrative expenses of the bank would have to be applied to make that effect visible.

29. Furthermore, in a situation where retail banks commonly hold originated loans to maturity the fair value measurement of these loans is highly judgemental. This is because the loans are less standardised, which makes it difficult to derive market parameters from the limited sales transactions. Also, those transactions are often private and therefore pricing information is hard to obtain. This is different in

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[12] With a business model that sells originated financial instruments in the normal course of business administrative resources for servicing the instruments are not needed (or any such resources would generate income because they provide services to others—purchasers of the instruments).

markets where the common business model is to sell or securitise loans as part of the business model.

Conclusion

30. Regarding the actual journal entries, all four alternatives would lead to recognising the valuation effect in profit or loss, which provides a counter-balancing effect to the fair value measurement of the hedging instruments. For alternatives 2 to 4 the valuation effect qualifies as a fair value adjustment and could be presented that way.

31. The fact that the alternatives 2 to 4 lead to similar results demonstrates that the absolute amount of the cash flows is less decisive for the measurement (for identical maturities). The key factor is rather the discount rate used. This is most obvious with alternative 4 where the amortisation of the day 1-difference in effect leads to the same result as if the cash flow profile was consistent with the discount rate (in the absence of discounting and unwinding effects).

32. Assuming an otherwise perfect risk management approach, only an accounting approach based on the measurement of the risk position on the basis of the model used by risk management (here the internal transfer pricing transaction) can reflect that.[13] This is because the model serves as a basis for determining the need for and terms of hedging instruments. However, it also leaves two judgemental areas that need to be addressed when considering the use for accounting purposes:

  (a) Link between the measurement model and actual transaction—It has to be ensured that the model is representative of the underlying external transaction at any time. This relates to the existence of the hedged item to avoid including the measurement of fictitious risk management positions.[14] Also, the key parameters of the hedged item and the model must correspond and have to be adjusted whenever the terms of the external transaction are changed.

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[13] For illustrative purposes the examples in this paper assume a measurement of the risk position on the basis of an internal transfer pricing system leading to alternative 2 as valuation approach. However, sometimes a measurement similar to alternative 4 based on the entire contractual cash flows is used. This follows the idea that also the spread-elements of that interest cash flow carry interest rate risk when not covered. However, those approaches usually do not use any amortisation techniques.

[14] This addresses situations where the model valuation does not reflect the actual derecognition of the underlying external financial instruments. Therefore risk management would carry out its activities on the basis of a non-existing risk positions from the entity's perspective.

(b) Changes to the measurement model—This relates to changes in parameters of the model, eg changing the benchmark interest rate. In general this is a topic that is not specific to the modelling of risk positions as parameters of a fair value calculation might be subject to change as well. However, in in a risk management context it is important whether the change results from the underlying external transaction and is intended to better reflect the risk position. Alternatively it might represent a change in the risk management objective. The latter might be viewed differently for accounting purposes.[15]

33. Regarding the fair value measurement for the entire instrument it has to be considered that the financial instruments involved are commonly resulting from retail business activities.[16] Therefore, the measurement of the fair value is usually based on unobservable inputs. Just like for the interest rate driven valuation the benchmark interest rate has to be determined. In addition, elements like a credit spread, a liquidity spread and a margin to cover administrative cost as well as a profit margin have to be determined to end up with the appropriate discount rate. Those have to be derived from the perspective of a fictitious buyer, which is even more difficult in a situation where the business model does not comprise the selling of transactions on a regular basis. In essence, the 'full' fair value measurement on the basis of unobservable parameters as well as the measurement of the risk position as described both represent mark-to-*model* approaches. The difference is the number of parameters taken into account.

34. Furthermore, the valuation of non-interest elements that are not subject to risk management activities compares the pricing of the instruments with the current market expectations. The resulting valuation gains or losses however can only be realised through a sale and otherwise represent pure opportunity gains or losses. As such the information content is limited as the measurement does not reflect the

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[15] The aspects discussed in this paragraph become even more important for the consideration of layer approaches or other modelling and need to be discussed in connection with those.

[16] Beside transactions with private customers the same considerations apply for corporate loans to non-listed entities like SMEs. This also creates a link to the non-banking sector where items subject to macro hedging typically result from individualised sales or procurement transactions.

most likely course of action. This is especially true when the spread is supposed to cover costs that are not measured at fair value.