Application of fair value hedge accounting under IAS 39 for portfolio hedges of interest rate risk for insurance contract liabilities

Scope of this paper:

This paper focuses on the application of hedge accounting under IAS 39 for portfolio hedges of interest rate risk for insurance contract liabilities.

The following key assumptions are made:

- Interest rate risk is a separately identifiable and reliably measurable component of the particular insurance contracts. This assessment will depend on facts and circumstances and judgment will need to be applied, and as a result is not explored further in this paper

- Insurance contracts meet the definition of financial liabilities and are eligible for the IAS 39 model for portfolio hedges of interest rate risk in IAS 39 AG 114 through AG 132. AG 115 refers to "...only to a fair value hedge of the interest rate risk associated with a portfolio of financial assets or financial liabilities...". As a result, it is assumed that there is no restriction from applying the portfolio hedge of interest rate risk model in IAS 39.

- This paper is focused on IAS 39 as issued by the IASB. Different results may be achieved if local equivalents of IAS 39 are used (e.g. the EU carve-out).

This paper has the following three sections:

- Section 1 - Why is hedge accounting needed?
- Section 2 - Overview of the portfolio hedge accounting model
- Section 3 - Application of the portfolio hedge accounting model to insurance contracts

Section 1 - Why is hedge accounting needed?

The fair value of insurance contracts generally varies with interest rates. An insurer might hold a derivative (for example, an interest rate swap) to hedge exposure to the interest rate risk inherent in an insurance contract. The derivative would protect the insurer from changes in the fair value of the insurance contracts that arises from changes in interest rates.

Insurers typically invest in fixed rate assets to cover the outflows expected for insurance obligations. But because an insurance contract may be very long term, it may be difficult for the insurer to find a well-diversified portfolio of fixed rate assets that align closely with the term of their insurance contracts. The insurer therefore will often invest into a well-diversified portfolio of fixed rate assets that have a much shorter maturity than the insurance contract and may then close the duration gap using forward starting interest rate swaps.

An accounting mismatch could arise where:

(a) the effect of changes in interest rates on the value of the derivative (e.g. the forward starting interest rate swap) is recognised immediately in profit or loss; and

(b) the insurer is applying the general model, and the effect of changes in interest rates on the insurance contracts is recognised in OCI, in accordance with the insurer's accounting policy.

Note that even if the insurer does not elect to apply the option for recognising the effect of changes in interest rates on the insurance contracts in OCI, and classifies and measures the financial assets and the derivative as at fair value through P&L, it will still be exposed to significant accounting volatility.

This is because although the risk free interest rate risk exposure of the insurance liability will be offset in profit or loss by the changes in fair value of the derivative and the interest rate component of the financial assets, the fair value of the financial assets would be sensitive to changes in the debt instrument's credit spread (i.e. the investments will be exposed to both risk free interest rates and the credit of the underlying issuers).

Additionally, the insurer may want to hedge only a portion of the interest rate exposure and if the fair value model was chosen for the insurance liability, it would be required to be measured in its entirety through profit and loss (i.e. there would not be an option to classify for example 30% of the liability through P&L and the remainder through OCI).

Section 2 - Overview of the portfolio hedge accounting model

Because of difficulties in identifying, designating and tracking individual fair value hedges for dynamic, open portfolios of insurance contracts, an insurer might want to consider applying the IAS 39 model for 'fair value macro hedges' - that is, for fair value hedges of the interest rate exposure of a portfolio of financial assets or financial liabilities.

This approach was specifically designed for hedges of open portfolios where both the contracts being hedged, and the derivatives used to hedge them, change frequently. It accommodates such hedges of open portfolios by treating them as a series of closed portfolios with short lives, and then regularly updating each portfolio and the derivatives designated as hedging it as the hedged position changes.

This makes a fair value macro hedge more useful than a 'normal' fair value hedge when managing dynamic, open portfolios that change over time. In a fair value macro hedge:

- An entity identifies a portfolio of items whose interest rate risk it wishes to hedge as part of its risk management process. It analyses that portfolio into repricing time periods, based on expected repricing dates ('time buckets').

- On the basis of the time buckets, the entity designates as the hedged item the interest rate risk from an amount of assets or liabilities (but not a net amount) from the portfolio. This amount is used for testing ineffectiveness. The entity could designate a portion of the interest rate risk in the hedged position, provided that the portion can be separately identified and reliably measured.

- The entity designates one or more hedging instruments for each time bucket.

- The entity assesses whether the hedge is expected to be highly effective at inception and during subsequent periods. The effectiveness tests are determined based on the change in fair value of the amount of assets or liabilities designated in a time bucket, rather than on the individual assets or liabilities.

- If the hedge is determined to be highly effective, the entity recognises the change in fair value of the hedged items due to the hedged risk in profit or loss. The change in fair value of the hedging instruments is also recognised in profit or loss. Therefore, any ineffectiveness will be recognised in profit or loss.

- After testing effectiveness and making the accounting entries noted above, the entity adjusts the designated hedged portfolio to reflect any changes in it (for example from the origination of new assets or liabilities), and it repeats the process set out above. In testing ineffectiveness in a fair value macro hedge, the same prospective and retrospective tests as for a 'micro' fair value hedge are required.

- The expected repricing dates are determined as the earlier of the dates when the item is expected to mature and when it is expected to reprice to market rates. Because the entity tests effectiveness on the basis of an amount of assets and liabilities analysed into these time buckets, the entity needs to demonstrate that the hedge is effective only for the period for which the hedge is designated.

- For a group of similar items, the analysis into time periods based on expected repricing dates might take the form of allocating a percentage of the group, rather than individual items, to each time period, provided that the methodology is in accordance with the entity's risk management procedures and objectives. However, hedging a bottom layer is not allowed.

- IAS 39 also allows for voluntary de-designation and re-designation and sometimes entities frequently de-designate and re-designate to maintain effectiveness in the context of portfolio fair value hedging.

Section 3 - Application of the portfolio hedge accounting model to Insurance contracts

There are a number of places throughout AG114 – AG132 in IAS 39 where some interpretation is required in order to apply the IAS 39 fair value macro hedge accounting model to a portfolio of insurance contracts.

The section of the paper focuses on two examples of insurance products to seek clarification on the application of the fair value macro hedge model, in particular how the model applies to changes in cash flows due to the occurrence of the insured event (ie mortality risk)

The examples of hedged insurance contracts (accounted for applying the general model in IFRS 17) considered in this paper are:

- Life contingent term annuity: Insurer receives upfront lump sum payment (e.g. $500k) and in exchange provides a specified amount (e.g. $30k per year) for a defined term (e.g. 20 years). All payments cease on death of the policy holder. The policy cannot be transferred.

- Fixed indexed annuity: Same as life contingent annuity above but the pay-out is indexed to a fixed rate which is determined at the inception (e.g. Payout starts at $30k a year and is indexed up at 1% each year during the term). Again, all payments cease on death of the policy holder.

In order to hedge such contracts, the insurer will enter into an interest rate swap receiving a fixed rate over the term of the insurance contract and paying floating risk free benchmark rate.

As noted above, the analysis in this paper focuses on the occurrence of the insured event (ie mortality) and the impact on ineffectiveness, rather than changes in cash flows due to lapses and surrenders.

While lapses (i.e. when the policyholder cancels his policy) or surrender features (ie when the policyholder surrenders his policy) are also typically present in many insurance contracts, these can be viewed as similar to prepayment risk in a mortgage, since there can also be a correlation with interest rate risk.

- For lapses and surrenders, an insurer is therefore permitted to exclude changes in expected repricing dates (for example, from the exercise of prepayment options) when determining the change in the fair value of the hedged item provided that it is not attributable to the hedged interest rate; in other words, the following criteria must be met:
    - the changes clearly arise from factors other than changes in the hedged interest rate;
    - the changes are uncorrelated with changes in the hedged interest rate; and
    - the changes can be reliably separated from changes that are attributable to the hedged interest rate.

- However, to the extent that changes in lapse or surrender rates do not meet these criteria, that effect would need to be included as a source of ineffectiveness.

Lapses and surrenders are therefore not further analysed in this paper.

For mortality (ie the insured event), two approaches are further analysed in this paper. Approach 1 considers mortality risk also as analogous to prepayment risk, Approach 2 considers mortality as analogous to credit risk. For each approach, the impact on ineffectiveness is also analysed.

Approach 1 - Apply AG121 - mortality risk is akin to prepayment risk

Applying AG 121 will require the following analysis.

Question 1 - Is the insured event (ie mortality risk) akin to prepayment risk in mortgages (AG 121)?

Yes, mortality risk is akin to prepayment risk.

With mortality risk, the risk is that the insurer pays more or less under the contract. So the amount and timing of the cash flows varies. This akin to prepayment risk in a mortgage where the amount and timing of the cash flows may vary depending on whether or not the mortgagee exercises its prepayment option.

Although, some may argue that mortality risk is different from prepayments on a mortgage loan as such prepayments are related to interest rate risk in some cases (e.g. where the borrower feels they can obtain a more favourable financing). In practice, prepayments may be unrelated to interest rate risk as well and related to borrower specific factors (e.g. moving to a new city for employment reasons).

Question 2 - Is there ineffectiveness for changes in timing of cash flows due to the occurence of the insured event (ie mortality)?

Under the portfolio fair value hedge model in IAS 39, prepayable items are scheduled into repricing time periods based on expected, rather than contractual, repricing dates. By doing so, the change in fair value of the prepayment options can be approximated using the expected profile of the hedged items rather than having to directly calculate the change fair value of prepayment options with respect to interest rate. This is further explained in BC180 of IAS 39. :

BC180 The Board decided to permit the scheduling that is used for risk management purposes, i.e. on the basis of expected repayment dates, to be used as a basis for the designation necessary for hedge accounting. As a result, an entity would not be required to compute the effect that a change in interest rates has on the fair value of the prepayment option embedded in a prepayable item. Instead, it could incorporate the effect of a change in interest rates on prepayments by grouping the hedged portfolio into repricing time periods based on expected repayment dates. The Board noted that this approach has significant practical advantages for preparers of financial statements, because it allows them to use the data they use for risk management. The Board also noted that the approach is consistent with paragraph 81 of IAS 39, which permits hedge accounting for a portion of a financial asset or financial liability. However, as discussed further in paragraphs BC193–BC206, the Board also concluded that if the entity changes its estimates of the time periods in which items are expected to repay (eg in the light of recent prepayment experience), ineffectiveness will arise, regardless of whether the revision in estimates results in more or less being scheduled in a particular time period.

If the expected maturity of insurance contracts is akin to prepayment risk, the insurer would schedule expected "maturities" into time bands and value the portfolio based on expected rather than contractual maturities.

As noted above, initially it requires entities to conclude that the "maturity" date of the contract is the date of the expected insured event (in a simple lifetime annuity contract, the expected mortality).

Two views are explored for the treatment of ineffectiveness.

View 1 - Yes, there is ineffectiveness - AG 126 needs to be followed.

Under AG 126, an entity tests effectiveness periodically. If estimates of repricing dates change between one date on which an entity assesses effectiveness and the next, it shall calculate the amount of effectiveness either:

> (a) as the difference between the change in the fair value of the hedging instrument (see paragraph AG114(h)) and the change in the value of the entire hedged item that is attributable to changes in the hedged interest rate (including the effect that changes in the hedged interest rate have on the fair value of any embedded prepayment option); or

(b) using the following approximation. The entity:

(i) calculates the percentage of the assets (or liabilities) in each repricing time period that was hedged, on the basis of the estimated repricing dates at the last date it tested effectiveness.

(ii) applies this percentage to its revised estimate of the amount in that repricing time period to calculate the amount of the hedged item based on its revised estimate.

(iii) calculates the change in the fair value of its revised estimate of the hedged item that is attributable to the hedged risk and presents it as set out in paragraph AG114(g).

(iv) recognises ineffectiveness equal to the difference between the amount determined in (iii) and the change in the fair value of the hedging instrument (see paragraph AG114(h)).

The effectiveness testing would consist of measuring the ratio between (i) the change in the present value ("PV") of the hedged cash flows discounted at market swap curve (as detailed in b) above), and (ii) the variation of PV of the hedging derivative; such ratio should be within the 80-125% requirement. Any ineffectiveness will be recognized in P&L. If the critical terms of the hedging swap perfectly match those of the hedged cash flows, the hedging relationship should be highly effective.

The fixed leg of the swap is sensitive to the interest rate curve and hence should compensate the fair value attributable to the libor component of the insurance hedged liability flow. On the other hand, the floating leg is not sensitive to the interest rate curve, making the fair value hedge perfectly effective as both PV will have the same sensitivity to interest rates where there is no mismatch in the timing of the cash flows.

The changes in fair value attributable to the hedged risk should be recognized in P&L with an offsetting entry in OCI (assuming that the option is elected). As the insurer will enter into new insurance contracts and new derivatives, the insurer will have to adjust the designation. The insurer will have to track the insurance liabilities by vintage and time buckets in order to ensure the cumulative changes of fair value attributable to the hedged risk that are recognized in OCI are recycled in P&L in the right period when the insured event occurs.

View 2 - No, there is no ineffectiveness due to changes in cash flows as AG 121 applies (changes are uncorrelated to interest rate risk)

For this approach to work for insurers, the entity would need to be able to conclude that changes in expected mortality were clearly separable from changes in interest rate related policyholder behaviour, as required by AG121:

AG121 ....Conversely, changes in expected repricing dates that (a) clearly arise from factors other than changes in the hedged interest rate, (b) are uncorrelated with changes in the hedged interest rate and (c) can be reliably separated from changes that are attributable to the hedged interest rate (eg changes in prepayment rates clearly arising from a change in demographic factors or tax regulations rather than changes in interest rate) are excluded when determining the change in the fair value of the hedged item, because they are not attributable to the hedged risk. If there is uncertainty about the factor that gave rise to the change in expected repricing dates or the entity is not able to separate reliably the changes that

arise from the hedged interest rate from those that arise from other factors, the change is assumed to arise from changes in the hedged interest rate

In the case of a simple, non-transferable annuity product where payments stop on death of the policyholder, only death of the policyholder changes the maturity profile. The application of the above would therefore mean that the portfolio would suffer no ineffectiveness since all changes in expected profile would be attributable to a non-interest rate related factor.

Practically, it would be as if the insurer were applying a kind of bottom-up approach at the start of each period. That is, provided the insurer demonstrated that its interest rate swaps were less than the hedged insurance contracts in any time bucket at inception, it would not book any ineffectiveness at the end of that period associated with changes in the profile.

This would be similar to a bank utilising the portfolio fair value hedge of interest rate risk approach to hedge a mortgage portfolio and all the mortgagees prepaid because they moved to a new city – terminating each existing mortgage. In that case there would also be no ineffectiveness attributable to unexpected prepayment. Upon the termination of all of the mortgages they would be derecognised including the fair value basis adjustment, but there would be no ineffectiveness recorded in advance of this point. However, in practice other available mortgages would often be substituted for the derecognised ones in a dynamic portfolio through voluntary de-designation and re-designation.)

Approach 2 - Apply AG 124 - mortality risk is akin to credit risk

Applying AG 124 will require the following analysis.

Question 1 - Is the insured event (ie mortality risk) akin to credit risk in mortgages (AG 124) ?

Mortality should be viewed as akin to credit risk (i.e. the approach in AG 124)

With credit risk, the risk is that the customer defaults, and does not pay the contractual cash flows that are due under the contract. When the policyholder dies, the annuity payments stop and no additional payments are made subsequently. The insured event is akin to an event of default and the payment stream ends upon the occurrence of the event of default (i.e. when the policyholder dies the annuity payment ends).

Similar to mortality risk, subsequent to a total credit loss event, the instrument would cease being exposed to further risk free interest rate movements. However, default risk relates to the credit component of the market interest rate of the loan whereas the designation of the hedged risk relates solely to the risk free rate. Accordingly, credit default risk has the potential to terminate exposure to market interest rates. However, because exposure to credit risk and risk free rates are individually separately identifiable components, they are measured independently and the risk free component is not impacted by the potential for default.

Conceptually, this same approach could be used for mortality risk. That is, mortality terminates interest rate risk, but the risk free exposure can be measured independently from that risk.

Question 2 - Is there ineffectiveness for changes in timing of cash flows due to the occurence of the insured event (ie mortality) and when should it be recorded?

View 1 - Yes, recognise ineffectiveness when the insured event occurs

The insurer would need to follow AG124, which notes that "ineffectiveness arises to the extent that the change in the fair value of the hedged item that is attributable to the hedged risk differs from the change in the fair value of the hedging derivative. Such a difference may arise for a number of reasons, including:

> (a) actual repricing dates being different from those expected, or expected repricing dates being revised;
>
> *(b) items in the hedged portfolio becoming impaired or being derecognised*;
>
> (c) the payment dates of the hedging instrument and the hedged item being different; and
>
> (d) other causes (eg when a few of the hedged items bear interest at a rate below the benchmark rate for which they are designated as being hedged, and the resulting ineffectiveness is not so great that the portfolio as a whole fails to qualify for hedge accounting)." [emphasis added]

Under this approach, ineffectiveness would be recorded when the insured event occurs (assuming the entity did not apply a continuous de-designation and re-designation with substitute hedged items) but not prior to that where such inputs are not attributable to the hedged risk (i.e. the risk free rate).

View 2 - No, recognise ineffectiveness when changes in expectations of the timing of the insured event occur impact the hedged risk

One could consider that changes in mortality that result in the liability being expected to end prior to the maturity of the derivatives lead to ineffectiveness. This is because for such a change there is a relationship between interest and mortality risk. The fact that the insured event (i.e. mortality is expected to occur earlier than anticipated) has an impact on the interest rate risk, because the insurance contract is now expected to end earlier than was originally anticipated.

However, changes in expected mortality that result in the liability being expected to end after the maturity of the derivatives would not lead to effectiveness. This is because it would not affect the hedged risk, which was originally defined to be limited to the maturity of the derivatives.