

Financial accounting module 24: Subsequent measurement

(The attached PDF file has better formatting.)

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This posting shows all the accounting entries for a non-onerous contract and an onerous contract over three years. The arithmetic from Module 21 is repeated in this posting many times; the new item is the tracking of the loss component of the liability for remaining coverage. The final exam problems are taken from the posting for an insurance contract with one payment at the end of the coverage period (of one or two years). If you can replicate the exercises from that posting, you are all set. This posting covers the same material with a more complete illustration and more extensive explanation. If the reconciliations of the insurance contract liability are unclear to you after reading the simpler posting, read the explanations in this posting.

The final exam problems may give the elements used to determine or to analyze insurance revenue and ask you to compute insurance revenue. They may also give the two parts of the liability for remaining coverage at the beginning of the year, the discount rate, and the occurrence of a claim or a revision of a claim estimate, and ask for the two parts of the liability for remaining coverage at the end of the year. You are not responsible for the end-notes in this posting (which cite the text of IFRS 17). All final exam problems are based on the posting for a one- or two-year coverage period with one claim.

NON-ONEROUS VS ONEROUS CONTRACTS

We show the accounting entries for four groups of insurance contracts:

- non-onerous contracts that remain non-onerous
- onerous contracts that remain onerous
- non-onerous contracts that later become onerous
- onerous contracts that later become not onerous

For simplicity, the premiums here are received at initial recognition and the claims occur at the end of the year. The fulfilment cash flows in real scenarios are the present values of all cash flows at the discount rate for the maturity of the cash flow using best estimates of the timing of each cash flow. The illustrations have either one claim at the end of the second or third year or claims each year.

Reconciliations of the insurance contract liability

We compute the entries for the two reconciliations of the insurance contract liability: the reconciliation required by paragraph 100 and the reconciliation required by paragraph 101.

- The reconciliation of the insurance contract liability required by paragraph 100 is called the “progression of the insurance contract liabilities for remaining coverage and for incurred claims” in the IFRS 17 *Effects Analysis*.¹
- The reconciliation of the insurance contract liability required by paragraph 101 is called the “movements in the insurance contract liabilities analyzed by components” in the IFRS 17 *Effects Analysis* and is referred to as the “source of changes in the fulfilment cash flows” in the IFRS 17 *Illustrative Examples* paragraph IE91.²

The reconciliations are shown separately for primary insurance contracts issued vs reinsurance contracts and for contracts that are net assets vs contracts that are net liabilities. The entries for the reconciliation exhibits are computed for the group of insurance contracts, since they depend on the estimated future cash flows, the discount rates, the acquisition cash flows, and the contractual service margin vs losses on onerous contracts.

The two reconciliations show different lines:

- The reconciliation required by paragraph 100 divides the insurance service result into insurance revenue and insurance service expenses; the latter are shown separately for future, current, and past services. The reconciliation separates the investment component from the insurance component of the claim payments; only the insurance component affects insurance revenue and insurance service expenses.
- The reconciliation required by paragraph 101 divides between changes related to current services and changes related to future services, which are the sources of changes in the fulfilment cash flows.
- Both reconciliations show cash inflows, cash outflows, and insurance finance income or expense.

Each reconciliation is shown in a table, separately for insurance contracts issued and reinsurance contracts held, with each further divided between groups with an insurance (or reinsurance) contract liability and groups with an insurance (or reinsurance) contract asset.³

The entries in the reconciliation exhibits are *computed* for each group of insurance contracts. The insurer may report the reconciliations by group of insurance contracts or may combine groups, but it must report separate reconciliations for insurance contracts issued vs reinsurance contracts held and for insurance (or reinsurance) contract liabilities vs (insurance or) reinsurance contract assets.

NON-ONEROUS MULTI-YEAR CONTRACTS

On January 1, 20X1, an insurer issues a group of insurance contracts with three year contract periods:

- it collects premium of 800 at initial recognition
- it expects one claim for 750 to occur and be paid on December 31, 20X3
- the discount rate for the fulfilment cash flows is 6% *per annum*
- the risk adjustment for non-financial risk is 40 and does not accrete interest
- acquisition cash flows are zero
- the insurer invests the premium in financial assets yielding 8% *per annum*

We compute the entries for

- A. The fulfilment cash flows at initial recognition.
- B. The contractual service margin at initial recognition.
- C. The insurance contract liability at initial recognition.
- D. The fulfilment cash flows right after the premium is received.
- E. The fulfilment cash flows at December 31, 20X1.
- F. The insurance finance expense on the fulfilment cash flows in 20X1.
- G. The contractual service margin at December 31, 20X1, before the allocation to profit or loss.
- H. The allocation to profit or loss at December 31, 20X1.
- I. The contractual service margin at December 31, 20X1, after the allocation to profit or loss.
- J. The insurance contract liability at December 31, 20X1.
- K. The 20X1 reconciliation of the insurance contract liability required by paragraph 101.
- L. The 20X1 reconciliation of the insurance contract liability required by paragraph 100.
- M. The insurance finance expense on fulfilment cash flows and contractual service margin in 20X2.
- N. The contractual service margin at year-end 20X2, before and after the allocation to profit or loss.
- O. The 20X2 reconciliation of the insurance contract liability required by paragraph 101.
- P. The 20X2 reconciliation of the insurance contract liability required by paragraph 100.
- Q. The insurance finance expense on fulfilment cash flows and contractual service margin in 20X3.
- R. The contractual service margin at year-end 20X3, before and after the allocation to profit or loss.
- S. The 20X3 reconciliation of the insurance contract liability required by paragraph 101.
- T. The 20X3 reconciliation of the insurance contract liability required by paragraph 100.

Part A: The fulfilment cash flows are the present value of the net future cash outflows + the risk adjustment for non-financial risk. At initial recognition:

- future premium cash inflows = 800, discounted for 0 years
- future claim cash outflows = 750, discounted for 3 years
- risk adjustment for non-financial risk = 40, not discounted

The present value of future claim outflows is $750 / 1.06^3 = 629.71$, so the present value of future cash outflows is $-800 / 1.06^0 + 750 / 1.06^3 = -170.29$. The risk adjustment for non-financial risk is 40, so the fulfilment cash flows = $-800 / 1.06^0 + 750 / 1.06^3 + 40 = -130.29$.

The fulfilment cash flows = the present value of the cash needed to fulfill the insurance obligations, so

- expected claim payments, acquisition expenses, and the risk adjustment are positive entries
- the expected premium received is a negative entry

The risk adjustment for non-financial risk compensates the insurer for the uncertainty in the claim payments.

Directly attributable acquisition cash flows need not vary with the number of insurance contracts or with the premium; they are measured on a portfolio basis, not a contract basis or a group basis. Including only the acquisition cash flows that are directly attributable to the insurance contracts reduces the fulfilment cash flows.

- Fixed costs related to the portfolio of insurance contracts, such as rent expense for a branch office, are directly attributable to the portfolio and are included in the fulfilment cash flows.
- Fixed costs not related to a specific portfolio of insurance contracts, such as costs of senior executives, are not part of fulfilment cash flows.

The sign convention here for cash inflows and outflows is the same as in the IFRS 17 *Illustrative Examples*. This convention is not required by IFRS 17, but it helps readers compare the illustrations here to the examples in the IFRS 17 *Illustrative Examples*. The signs of assets, liabilities, revenue, and expenses in the *Illustrative Examples* are confusing to some readers, so we often comment on the signs of the accounting entries.

The discount rate here is the same for all years. Changes in discount rates affect the fulfilment cash flows and insurance finance expense, but not the contractual service margin.⁴ For each portfolio of insurance contracts, the insurer selects whether changes in the discount rate affect profit or loss or affect other comprehensive income. Separate illustrations show the effects of changes in the discount rate.

Part B: The contractual service margin at initial recognition is the unearned profit from the insurance contracts; it is the negative of the fulfilment cash flows but not less than zero = 130.29.⁵ It is allocated by year and recognized in the statement of profit or loss in proportion to the coverage units (insurance services) provided.

The contractual service margin eliminates any profit at initial recognition. The unearned profit is not fixed; the recognition of this profit in later years depends on changes in the fulfilment cash flows.

Accounting conservatism may refer to the valuation of assets vs liabilities or the recognition of gains vs losses. IFRS requires unbiased estimates of assets and liabilities: assets may not be under-estimated and liabilities may not be over-estimated for conservatism. But IFRS may recognize revenue and losses at different rates:

- Losses may not be deferred. If the insurer expects future losses on a group of insurance contracts, the loss is recognized immediately in the statement of profit or loss.
- Gains may not be anticipated. If the insurer expects future profits on a group of insurance contracts, the insurance revenue is held in the contractual service margin and recognized in the statement of profit or loss as the insurance services are provided (in proportion to the coverage units).

Part C: The insurance contract liability is the fulfilment cash flows + the contractual service margin.

- If the insurance contracts are not onerous (as in this exercise), the contractual service margin at initial recognition is the negative of the fulfilment cash flows and the insurance contract liability is zero.
- If the insurance contracts are onerous ("loss-making"), the fulfilment cash flows at initial recognition are positive, the contractual service margin is zero, the insurance contract liability is positive, and the insurer records a loss in the statement of profit or loss.⁶

One is tempted to think of non-onerous contracts as profitable and onerous contracts as unprofitable. The profitability of a set of contracts is the net present value at the opportunity cost of capital including all related expenses but not the risk adjustment for non-financial risk.⁷ IFRS 17 uses the term loss-making, meaning that the group of contracts causes a loss in the statement of profit or loss.⁸

The insurance contracts here are not onerous, so the insurance contract liability at initial recognition is zero. Separate illustrations show scenarios for onerous contracts.

Part D: The fulfilment cash flows right after the premium is received = $750 / 1.06^3 + 40 = 669.71$. The premium for single-pay policies is often received when the coverage period begins; for annual premium policies, both premiums and expected claims are discounted to present values. The receipt of premium (a cash inflow) increases the fulfilment cash flows and the insurance contract liability:

- fulfilment cash flows: $-130.29 + 800 = 669.71$

- insurance contract liability: $0 + 800 = 800.00$

Expected future cash flows and current cash flows have opposite effects on the fulfilment cash flows.

- The expected future premium inflows reduce the fulfilment cash flows. When the premium is received, the expected future cash inflows decrease, and fulfilment cash flows increase.
- The expected future claim outflows increase the fulfilment cash flows. When the claim is paid, the expected future cash outflows decrease, and fulfilment cash flows decrease.

The contractual service margin is determined at initial recognition and is allocated to profit or loss as the insurance services are provided. It changes if estimates of future services (not current services) are revised:

- *Future service*: the contractual service margin changes if new contracts are added to the group, contracts leave the group (lapses and cancellations), or estimates of future claims on existing contracts are revised.
- *Current service*: the contractual service margin does not change if actual claim payments differ from the expected claim payments, estimates of incurred claims are revised, the discount rate is revised, or the estimated credit risk on reinsurance contracts held is revised.

The contractual service margin does not change for cash inflows (without corresponding revenue) or cash outflows (without corresponding expense):

- It does not change when premium is received for existing contracts (if claim estimates are not revised).
- It does not change when a claim is paid, even for an amount different from the current estimate.

Part E: The fulfilment cash flows at December 31, 20X1, are $750 / 1.06^2 + 40 = 707.50$.

The change in the fulfilment cash flows during the year stemming from the time value of money is insurance finance expense. The insurer's liability to its policyholders increases

- from $750 / 1.06^3 + 40 = 669.71$ at January 1, 20X1
- to $750 / 1.06^2 + 40 = 707.50$ at December 31, 20X1

so it has an expense of $707.50 - 669.71 = 37.79$. For double-entry book-keeping, the increase in the liability is a credit, and the expense in the statement of profit or loss is the offsetting debit.⁹

The insurer earns 8% *per annum* on the financial assets backing the insurance contract liability.

- The investment income is a revenue (a credit) on the statement of profit or loss.
- The increase in the carrying value of the financial assets is the offsetting debit.

The investment income on the assets bought with the insurance contract premium is covered by IFRS 9, not by IFRS 17, which deals with the accounting for the insurance contracts. The IFRS 17 exhibits show insurance finance expense on future cash outflows and insurance finance income on future cash inflows, but not the investment income on the assets bought with the underwriting cash flows. The insurer's financial statements show investment income as well as insurance finance expense.

- IFRS 17 presents the profit or loss from the insurance contracts in two parts:¹⁰
 - insurance service result, which is insurance revenue minus insurance service expense
 - insurance finance income or expense
- The IFRS 17 *Effects Analysis* shows a net financial result in the statement of comprehensive income as
 - investment income on the financial assets from the insurance contracts
 - minus the insurance finance expense¹¹

IFRS 17 seeks to avoid accounting mismatches between investment income and insurance finance expense by reporting them in the same financial statement (either profit or loss or other comprehensive income). The insurer has an accounting policy choice whether to dis-aggregate insurance finance expense between profit or loss and other comprehensive income or to report all insurance finance expense as profit or loss.

In this illustration, the payment to policyholders is for a fixed amount. If the payment to policyholders depends on the returns from a specified pool of assets, IFRS 17 uses the expected return on the specified pool of assets as the discount rate. If the payment to policyholders is the fair value of underlying assets, IFRS 17 uses a different measurement approach, the variable fee approach, discussed in a separate chapter.

The fulfilment cash flows at initial recognition has two parts:

- the present value of future cash flows, or $750 / 1.06^3 = 629.71$, which accretes interest
- the risk adjustment for non-financial risk of 40, which does not accrete interest (in this illustration)¹²

If the discount rate changes, we distinguish between the accretion of interest and insurance finance expense:

- The accretion of interest is the carrying value at the beginning of the year times the discount rate determined at initial recognition of the insurance contracts.
- The insurance finance expense is the change in the present value from the beginning to the end of the year from both the passage of time and the change in the discount rate.

The illustrations with changes in the discount rate show numerical examples.

Part F: The insurance finance expense on the fulfilment cash flows is

$$(750 / 1.06^2 + 40) - (750 / 1.06^3 + 40) = 37.78$$

The discount rate did not change here, so we can also compute this as $6\% \times 750 / 1.06^3 = 37.78$

If the current discount rate changes from 6% to 5%, the insurance finance expense is

$$(750 / 1.05^2 + 40) - (750 / 1.06^3 + 40) = 50.56$$

If the current discount rate changes from 6% to 7%, the insurance finance expense is

$$(750 / 1.07^2 + 40) - (750 / 1.06^3 + 40) = 25.36$$

The insurer makes an accounting policy choice whether to recognize

- the entire insurance finance expense in profit or loss
- a systematic allocation of the insurance finance expense in profit or loss and the remaining part in other comprehensive income

The systematic allocation recognizes 37.78 in profit or loss for 20X1. The other comprehensive income is

- $50.56 - 37.78 = 12.78$ if the market interest rate changes from 6% to 5%.
- $25.36 - 37.78 = -12.42$ if the market interest rate changes from 6% to 7%.

In 20X2 and 20X3, the amount recognized in profit or loss for the systematic allocation continues to use the discount rate at initial recognition (the 6% discount rate here), and the other comprehensive income is positive or negative, depending on the current market rate. The total other comprehensive income is zero when the claim is paid. The systematic allocation is explained in the chapter on discount rates.

If the insurance contracts have premiums received at future dates, as is true for annual premium policies, IFRS 17 shows insurance finance income as well as insurance finance expense. Insurers generally show

- net insurance finance expense for single-premium insurance contracts (or reinsurance contracts) issued
- net insurance finance income for reinsurance contracts held and annual premium insurance contracts in early years (while the present value of future premiums exceeds the present value of future claims).

Contractual service margin

Part G: The contractual service margin is the unearned profit in the insurance contracts at initial recognition. We use present values for the premium, claim, and acquisition cash flows, so the unearned profit is a present value and we accrete interest on the contractual service margin. The accretion of interest is $6\% \times 130.29 = 7.82$, and the contractual service margin at December 31, 20X1, before the allocation to profit or loss, is $130.29 \times 1.06 = 138.11$.

We compute the contractual service margin by accreting interest, not by computing present values of future cash flows, so we use the discount rate at initial recognition, not the current market rate. If the discount rate in this exercise changes to 5% or 7% at December 31, 20X1, we accrete interest on the contractual service margin at 6%, not at 5% or 7%, though we use 5% or 7% for the fulfilment cash flows.¹³

Illustration: A one-year insurance contract has premium of 100 received on January 1, a claim that occurs and is paid for 90 on December 31, no risk adjustment for non-financial risk, and a discount rate of 6% *per annum*. The present value of the profit in the contract (before it is allocated to the statement of profit or loss) is

- $100 - 90 / 1.06 = 15.09$ on January 1
- $100 \times 1.06 - 90 = 16.00$ on December 31

This profit (the contractual service margin) accretes interest at 6% *per annum*: $15.09 \times 1.06 = 16.00$.

Illustration: A two-year insurance contract has

- premium of 100 received on January 1, 20X1
- a claim that occurs and is paid for 90 on December 31, 20X2
- no risk adjustment for non-financial risk
- a discount rate of 6% *per annum*.

The contractual service margin at initial recognition is $100 - 90 / 1.06^2 = 19.90$. The fulfilment cash flows right after the premium is received are $90 / 1.06^2 = 80.10$.

At December 31, 20X1, the current discount rate changes to 5% *per annum*. The fulfilment cash flows are now $90 / 1.05^1 = 85.71$.

- The insurance finance expense on the present value of future cash flows is $85.71 - 80.10 = 5.61$.
 - This is not accretion of interest of $6\% \times 80.10 = 4.81$ or of $5\% \times 80.10 = 4.01$.
- The insurance finance expense on the contractual service margin is $6\% \times 19.90 = 1.19$.
 - The contractual service margin after accretion of interest is $19.90 + 1.19 = 21.09$.

Changes in current interest rates are related to current service, not to future service, even though the claims will occur in the future.¹⁴ The change in the fulfilment cash flows at December 31, 20X1, from the change in current interest rates is $90 \times (1.05^{-1} - 1.06^{-1}) = 0.81$. This change is recognized in the 20X1 statement of profit or loss; it is not offset by a reduction in the contractual service margin.¹⁵

Revisions to estimates of future claims change the fulfilment cash flows and are offset by changes to the contractual service margin (if the contracts are not onerous). The changes are at present values using current

discount rates for the fulfilment cash flows and discount rates determined at initial recognition of the insurance contracts for the contractual service margin. We expand the illustration directly above:

Illustration: A two-year insurance contract has

- premium of 100 received on January 1, 20X1
- a claim that occurs and is paid for 90 on December 31, 20X2
- no risk adjustment for non-financial risk
- a discount rate of 6% *per annum*.

The contractual service margin at initial recognition is $100 - 90 / 1.06^2 = 19.90$. The fulfilment cash flows right after the premium is received are $90 / 1.06^2 = 80.10$.

At December 31, 20X1, the current discount rate changes to 5% *per annum* and the estimated claim payment is revised to 70.

- The insurance finance expense on the present value of future cash flows is $90 \times (1.05^{-1} - 1.06^{-2}) = 5.61$, reflecting both the time value of money and the change in the discount rate.
- The revision of the estimated claim payment is discounted at the current discount rate for the fulfilment cash flows: $(70 - 90) \times 1.05^{-1} = -19.05$.
- The accretion of interest on the contractual service margin is $6\% \times 19.90 = 1.19$.
- The change to the contractual service margin from the revision of the estimated claim payment uses the discount rate determined at initial recognition of the insurance contracts: $(90 - 70) \times 1.06^{-1} = 18.87$.¹⁶

In this illustration, the change in the estimated claim payment occurs at the end of the year, so the insurance finance expense on the present value of future cash flows and the accretion of interest on the contractual service margin are applied to the claim value at the beginning of the year. Changes in estimates and financial assumptions are often assumed to occur on the valuation date (the end of the year).

If the insurance contract is onerous or if it becomes onerous by the re-estimate of the claim payment, the part of the change to the fulfilment cash flows that affects the loss component of the liability for remaining coverage does not affect the contractual service margin; see the chapter on onerous contracts.

Allocation to profit or loss

Part H: The profit in the insurance contract is recognized in profit or loss as coverage is provided.

- For a single general insurance policy, coverage is usually provided evenly over the policy term.
- For groups of policies, coverage is not even: some policies may be added to the group in the second year (if the group is recognized in the middle of the first year) and some policies leave the group each year.
- For life insurance contracts, death and lapses decrease the number of policies.

This illustration assumes no contracts lapse or are added during the three year coverage period, so one third of the profit is recognized in 20X1 and two thirds remain in the contractual service margin. The profit in the 20X1 statement of profit or loss is $138.11 / 3 = 46.04$.

This illustration has no claims in 20X1, so the insurance revenue in 20X1 is the allocation of profit of 46.04.

- If claims occur in 20X1, the claim is both insurance revenue (the recognition of the premium received for the claim) and insurance service expense (the incurral of the claim).¹⁷
- If part of the risk adjustment for non-financial risk is released in 20X1, the amount released is insurance revenue, since the insurer is compensated for the risk adjustment in the premium, but not insurance service expense, since no money is paid when the risk adjustment is released.

- If the insurance contract has directly attributable acquisition cash flows, the portion of these cash flows allocated to 20X1 is insurance revenue (recognition of the premium that is allocated to these cash flows) and insurance service expense (the acquisition cash flows allocated to 20X1).

Part I: The contractual service margin after the allocation to profit or loss is

$$138.11 - 46.04 = 92.07 \text{ or } 138.11 \times 2 / 3 = 92.07.$$

The allocation of the contractual service margin to profit or loss is after the accretion of interest and after any changes stemming from re-estimates of future cash flows.

Part J: The insurance contract liability at December 31, 20X1, is the fulfilment cash flows + the contractual service margin = 707.50 + 92.07 = 799.57.

Part K: The insurer reconcile the entries at the beginning and the end of the year for

- the present value of future cash flows
- the risk adjustment for non-financial risk
- the contractual service margin¹⁸

The reconciliation shows the

- changes related to future service¹⁹
- changes related to current service²⁰
- changes related to past service²¹
- cash flows²²
- insurance finance income or expense²³

For this exercise, the insurance finance expense is

- present value of future cash flows: 37.78
- contractual service margin: 7.82
- risk adjustment for non-financial risk: 0

The changes related to future service are

- present value of future cash flows (new contracts) = $-800 / 1.06^0 + 750 / 1.06^3 = (170.29)$
- risk adjustment for non-financial risk = 40
- contractual service margin = 130.29

The changes related to current service are

- present value of future cash flows (no new contracts or changes in estimates in 20X1) = 0
- risk adjustment for non-financial risk (no release of risk adjustment in 20X1) = 0
- contractual service margin = -46.04 (allocated to profit or loss in 20X1)

No claims are incurred in past years and paid (or re-estimated) in the current year, so the changes for past service are zero.

Reconciliation of the insurance contract liability required by paragraph 101 (20X1)

The reconciliation exhibits are shown below for the group of insurance contracts.

Reconciliation of the insurance contract liability required by paragraph 101: source of changes in the fulfilment cash flows (movements in the insurance contract liabilities analyzed by components) (20X1)

| | <i>Present Value of Future Cash Flows</i> | <i>Risk Adjustment For Non-financial Risk</i> | <i>Contractual Service Margin</i> | <i>Insurance Contract Liability</i> |
|------------------------------------|---|---|---|---|
| <i>Opening Balance</i> | – | – | – | – |
| <i>Changes for Future Service</i> | (170.29) | 40.00 | 130.29 | 0.00 |
| <i>Cash Inflows</i> | 800.00 | | | 800.00 |
| <i>Insurance Finance Expenses</i> | 37.78 | 0.00 | 7.82 | 45.60 |
| <i>Changes for Current Service</i> | 0.00 | 0.00 | (46.04) | (46.04) |
| <i>Cash Outflows</i> | 0.00 | 0.00 | 0.00 | 0.00 |
| <i>Closing Balance</i> | 667.49 | 40.00 | 92.07 | 799.56 |

We explain the entries in the cells of the table above.

- The insurance contracts are written on January 1, 20X1, so the opening balances for 20X1 are zero.
 - The present value of future cash outflows (claims) is 170.29 less than the present value future cash inflows (premium), so the present value of net future cash flows is -170.29.
 - The risk adjustment for non-financial risk is 40, so the unearned profit in the insurance contracts is $-170.29 + 40 = -130.29$ and the contractual service margin is 130.29.
 - The insurance contract liability is $-170.29 + 40 + 130.29 = 0$. The insurance contracts are not onerous, so the insurance contract liability at initial recognition is zero.
- Premium of 800 is received with no offsetting revenue or expense.
 - The expected future premium was an offset to the present value of future cash flows, so when the premium is received, the present value of future cash flows increases 800 to $-170.29 + 800 = 629.71$ and the insurance contract liability increases 800 to $0 + 800 = 800$.
- The future cash flows and the contractual service margin are present values, so interest accretes at 6% *per annum*: $629.71 \times 6\% = 37.78$ on the present value of future cash flows and $130.29 \times 6\% = 7.82$ on the contractual service margin. (Since the discount rate does not change in 20X1, we can use accretion of interest for the insurance finance expense on the present value of future cash flows.)
 - The total insurance finance expense is $37.78 + 7.82 = 45.60$.
- One third of the contractual service margin (accumulated for the accretion of interest) is allocated to profit or loss in 20X1 as profit for current service: $(130.29 + 7.82) / 3 = 46.04$.
 - This revenue decreases the contractual service margin and the insurance contract liability.
- No claims are paid in 20X1, so the cash outflow is zero.
- The closing balance in each column is the sum of the entries above the closing balance line.

The accretion of interest on an asset is a revenue; the accretion of interest on a liability is an expense.

- The accretion of interest on a bond increases its market value (an asset) and is a revenue: the investor expects to receive higher future cash inflows.
- The accretion of interest on the fulfilment cash flows and on the contractual service margin increases the insurance contract liability and is an expense: the insurer expects to pay higher future cash outflows.

Reconciliation of the insurance contract liability required by paragraph 100 (20X1)

Part L: IFRS 17 paragraph 100 (the progression of the insurance contract liabilities for remaining coverage and for incurred claims) requires the insurer to reconcile

- the liability for remaining coverage, excluding the loss component

- the loss component of the liability for remaining coverage
- the liability for incurred claims

at the beginning and end of the year, showing

- insurance revenue
- insurance service expense
- insurance finance income or expense
- cash inflows and outflows

This reconciliation exhibit distinguishes the liability for remaining coverage (claims that have not yet occurred) from the liability for incurred claims. When a claim occurs, the estimated present value of the claim moves from the liability for remaining coverage to the liability for incurred claims.

Death benefits are paid soon after they occur: liability claims may be paid years after they occur. We assume for this illustration that the claim is paid right after it occurs, so the liability for incurred claims is zero. Insurance finance expense applies to

- the liability for remaining coverage between initial recognition and the date the claim occurs
- the liability for incurred claims between the date the claim occurs and the date it is paid.

A simplified example shows the progression of this reconciliation exhibit. Suppose premium of 100 is received on January 1, 20X1, the discount rate is 6% *per annum*, one claim is expected to occur and be paid for 106 on December 31, 20X1, the claim is paid for its expected amount, and the risk adjustment for non-financial risk is zero.

The fulfilment cash flows at initial recognition = $-100 + 106 / 1.06 = 0$, so the contractual service margin is zero, and the allocation of the contractual service margin to 20X1 profit or loss is zero.

The column titled liability for remaining coverage has entries for:

- The cash inflow (premium) of 100.
- The insurance finance expense of $106 - 106 / 1.06 = 6$.
- The insurance revenue (the accumulated premium that covers the claim) of -106.

The opening balance is zero, so the closing balance is $0 + 100 + 6 + -106 = 0$.

The column titled liability for incurred claims has entries for:

- The insurance service expense (occurrence of the claim) of 106.
- The cash outflow (claim payment) of -106.

The opening balance is zero, so the closing balance is $0 + 106 + -106 = 0$.

The explanation above shows the progression of the accounting entries. The determination of the entries is

- The opening balance of the liability for remaining coverage (before the contract is issued) is zero.
- The closing balance of the liability for remaining coverage (after the coverage period) is zero.
- The cash inflow (the premium received) is 100.
- The insurance finance expense is $106 \times (1.06^0 - 1.06^{-1}) = 6$.
- The insurance revenue is determined as $(0 - 0) - 100 - 6 = -106$.

The simple example above shows the determination vs the analysis of insurance revenue, which we apply now to the basic illustration in this section. No claims have yet occurred, so the liability for incurred claims is

zero. The loss component of the liability for remaining coverage refers to onerous contracts; these contracts are not onerous. For the liability for remaining coverage in this exercise:

- insurance revenue = -46.04 (the allocation of the contractual service margin to 20X1)
 - revenue decreases the liability, so the entry is negative
- insurance service expense = 0 (no claims or acquisition cash flows occur)
- insurance finance expense = $37.78 + 7.82 = 45.60$
 - the expense increases the liability, so the entry is positive
- cash inflows = premium of 800
 - cash inflows that are unearned increase the liability, so the entry is positive

The liability for remaining coverage at the end of the year is $800 - 46.04 + 45.60 = 799.56$

- The allocation of the contractual service margin is recognized as insurance revenue in the statement of profit or loss, decreases the insurance contract liability, and increases the insurance service result.
- The insurance finance expense is recognized in profit or loss, increases the insurance contract liability, and decreases the net financial result (investment income on insurance cash flows minus insurance finance expense).

The explanation above shows the progression of the accounting entries. The determination of the entries is

- The opening balance of the liability for remaining coverage (before the contract is issued) is zero.
- The closing balance of the liability for remaining coverage at December 31, 20X1, is the fulfilment cash flows + the contractual service margin = $707.49 + 92.07 = 799.56$
- The cash inflow (the premium received) is 800.
- insurance finance expense = $37.78 + 7.82 = 45.60$.
- The insurance revenue is determined as $(799.56 - 0) - 800 - 45.60 = -46.04$.

On its statements of financial performance (profit or loss and other comprehensive income), the insurer shows the net financial result as investment income minus the insurance finance expense. The net financial result is not explained in the text of IFRS 17, but it is shown in the IFRS 17 *Effects Analysis* exhibits.²⁴

Reconciliation of the insurance contract liability required by paragraph 100: progression of the insurance contract liabilities for remaining coverage and for incurred claims (20X1)

| | <i>Liability for remaining coverage excluding loss component</i> | <i>Liability for remaining coverage: loss component</i> | <i>Liability for incurred claims</i> | <i>Insurance Contract Liability</i> |
|-----------------------------------|--|---|--|---|
| <i>Opening Balance</i> | – | – | – | – |
| <i>Cash Inflows</i> | 800.00 | 0.00 | 0.00 | 800.00 |
| <i>Insurance revenue</i> | (46.04) | 0.00 | 0.00 | (46.04) |
| <i>Insurance service expenses</i> | 0.00 | 0.00 | 0.00 | 0.00 |
| <i>Investment component</i> | 0.00 | 0.00 | 0.00 | 0.00 |
| <i>Insurance Finance Expenses</i> | 45.60 | 0.00 | 0.00 | 45.60 |
| <i>Cash Outflows</i> | 0.00 | 0.00 | 0.00 | 0.00 |
| <i>Closing Balance</i> | 799.56 | 0.00 | 0.00 | 799.56 |

Part M: The insurance finance expense on the fulfilment cash flows for 20X2 is

$$(750 / 1.06^1 + 40) - (750 / 1.06^2 + 40) = 40.05$$

The discount rate did not change, so we can compute this as $6\% \times 750 / 1.06^2 = 40.05$

The insurance finance expense on the contractual service margin for 20X2 is $6\% \times 92.07 = 5.52$

The total insurance finance expense is $40.05 + 5.52 = 45.57$

Part N: The contractual service margin at December 31, 20X2, before the allocation to profit or loss is

$$92.07 + 5.52 = 97.59$$

The coverage units are the same for 20X2 and 20X3 (the years remaining in the coverage period), so the contractual service margin allocated to profit or loss in 20X2 is $97.59 / 2 = 48.80$.

The contractual service margin at December 31, 20X2, after the allocation to profit or loss is

$$97.59 - 48.80 = 48.79.$$

(With more decimal places, the allocation to profit or loss and the remaining contractual service margin are both 48.79628.)

The insurance revenue as analyzed above is 48.80. The insurance revenue is determined as

- The opening balance of the liability for remaining coverage at December 31, 20X1, is 799.56.
- The closing balance of the liability for remaining coverage at December 31, 20X2, is 796.33.
- The cash inflow (the premium received) is zero.
- The total insurance finance expense is $40.05 + 5.52 = 45.57$
- The insurance revenue is determined as $(796.33 - 799.56) - 0 - 45.57 = -48.80$

Reconciliation of the insurance contract liability required by paragraph 101 (20X2)

Part O: The 20X2 reconciliation of the insurance contract liability required by paragraph 101 is shown below.

Reconciliation of the insurance contract liability required by paragraph 101: source of changes in the fulfilment cash flows (movements in the insurance contract liabilities analyzed by components) (20X2)

| | <i>Present Value of Future Cash Flows</i> | <i>Risk Adjustment For Non-financial Risk</i> | <i>Contractual Service Margin</i> | <i>Insurance Contract Liability</i> |
|------------------------------------|---|---|---|---|
| <i>Opening Balance</i> | 667.49 | 40.00 | 92.07 | 799.56 |
| <i>Changes for Future Service</i> | 0.00 | 0.00 | 0.00 | 0.00 |
| <i>Cash Inflows</i> | 0.00 | | | 0.00 |
| <i>Insurance Finance Expenses</i> | 40.05 | 0.00 | 5.52 | 45.57 |
| <i>Changes for Current Service</i> | 0.00 | 0.00 | (48.80) | (48.80) |
| <i>Cash Outflows</i> | 0.00 | 0.00 | 0.00 | 0.00 |
| <i>Closing Balance</i> | 707.54 | 40.00 | 48.79 | 796.33 |

Reconciliation of the insurance contract liability required by paragraph 100 (20X2)

Part P: The 20X2 reconciliation of the financial statements required by paragraph 100 is shown below.

Progression of the insurance contract liabilities for remaining coverage and for incurred claims (20X2)

| | <i>Liability for remaining coverage excluding loss component</i> | <i>Liability for remaining coverage: loss component</i> | <i>Liability for incurred claims</i> | <i>Insurance Contract Liability</i> |
|-----------------------------------|--|---|--|---|
| <i>Opening Balance</i> | 799.56 | 0.00 | 0.00 | 799.56 |
| <i>Cash Inflows</i> | 0.00 | 0.00 | 0.00 | 0.00 |
| <i>Insurance revenue</i> | (48.80) | 0.00 | 0.00 | (48.80) |
| <i>Insurance service expenses</i> | 0.00 | 0.00 | 0.00 | 0.00 |
| <i>Investment component</i> | 0.00 | 0.00 | 0.00 | 0.00 |
| <i>Insurance Finance Expenses</i> | 45.57 | 0.00 | 0.00 | 45.57 |
| <i>Cash Outflows</i> | 0.00 | 0.00 | 0.00 | 0.00 |
| <i>Closing Balance</i> | 796.33 | 0.00 | 0.00 | 796.33 |

Part Q: The insurance finance expense on the fulfilment cash flows for 20X3 is

$$(750 / 1.06^0 + 40) - (750 / 1.06^1 + 40) = 42.45$$

The discount rate did not change, so we can compute this as $6\% \times 750 / 1.06^1 = 42.45$

The insurance finance expense on the contractual service margin for 20X3 is $6\% \times 48.79 = 2.93$

The total insurance finance expense is $42.45 + 2.93 = 45.38$.

Part R: The contractual service margin at December 31, 20X3, before the allocation to profit or loss is

$$48.79 + 2.93 = 51.72$$

20X3 is the last year of coverage, so the entire contractual service margin is allocated to profit or loss in 20X3.

The contractual service margin at December 31, 20X3, after the allocation to profit or loss is zero.

Reconciliation of the insurance contract liability required by paragraph 101 (20X3)

Part S: The claim for 750 is paid in 20X3, and the risk adjustment for non-financial risk is released.

- The cash outflow of the claim payment reduces the present value of future cash flows by 750.
- The release of the risk adjustment (not a cash flow) is a change for current service.

The reconciliation of the insurance contract liability required by paragraph 101 for 20X3 is shown below.

Reconciliation of the insurance contract liability: source of changes in the fulfilment cash flows (movements in the insurance contract liabilities analyzed by components) (20X3)

| | <i>Present Value of Future Cash Flows</i> | <i>Risk Adjustment For Non-financial Risk</i> | <i>Contractual Service Margin</i> | <i>Insurance Contract Liability</i> |
|------------------------------------|---|---|---|---|
| <i>Opening Balance</i> | 707.54 | 40.00 | 48.79 | 796.33 |
| <i>Changes for Future Service</i> | 0.00 | 0.00 | 0.00 | 0.00 |
| <i>Cash Inflows</i> | 0.00 | 0.00 | 0.00 | 0.00 |
| <i>Insurance Finance Expenses</i> | 42.45 | 0.00 | 2.93 | 45.38 |
| <i>Changes for Current Service</i> | 0.00 | (40.00) | (51.72) | (91.72) |
| <i>Cash Outflows</i> | (750.00) | 0.00 | 0.00 | (750.00) |
| <i>Closing Balance</i> | (0.01) | 0.00 | 0.00 | (0.01) |

Reconciliation of the insurance contract liability required by paragraph 100 (20X3)

Part T: The 20X3 claim affects several entries on the reconciliation of the insurance contract liability required by paragraph 100:

- the premium received for the claim (accumulated for the time value of money to the date the claim occurs) is recognized as insurance revenue
 - reducing the liability for remaining coverage
- the premium received for the risk adjustment for non-financial risk is recognized as insurance revenue
 - reducing the liability for remaining coverage
- the *occurrence* of the claim is an insurance service expense
 - increasing the liability for incurred claims
- the *payment* of the claim is a cash outflow
 - reducing the liability for incurred claims.

The insurance revenue for 20X3 is

750: the premium received for the 20X3 loss
 + 40: the premium received for the 20X3 release of the risk adjustment for non-financial risk
 + 51.72: the allocation of the contractual service margin to profit or loss
 = 750 + 40 + 51.72 = 841.72

Insurance revenue is the consideration (the premium) which the insurer expects for the insurance services it provides.²⁵ Insurance revenue is recognized when the insurance services are provided, so the premium is accumulated for the time value of money from the time the premium is received to the time the claim occurs.²⁶

The accumulated premium comprising the insurance revenue covers four items and is recognized four ways.²⁷

- covers insurance service expenses, such as claims and other benefits (but not the loss component of the liability for remaining coverage, which is immediately recognized as a loss in the statement of profit or loss and does not affect insurance revenue).
 - recognized when the claims and other benefits occur.
- covers the risk adjustment for non-financial risk (but not the loss component portion)
 - recognized when the risk adjustment is released.
- covers the unearned profit (the contractual service margin)
 - allocated to insurance revenue over the coverage period in proportion to the coverage units provided.
- covers the acquisition cash flows

- amortized and allocated to insurance revenue over the coverage period in proportion to the passage of time and the coverage provided.

Revenue is a negative entry in the reconciliation exhibits since it reduces the insurance contract liability.

The explanation above shows the progression (analysis) of the accounting entries. The insurance revenue is determined as

- The opening balance of the liability for remaining coverage is 796.33.
- The closing balance of the liability for remaining coverage at December 31, 20X3, is zero.
- The cash inflow (the premium received) is zero.
- The total insurance finance expense is $42.45 + 2.93 = 45.38$.
- The insurance revenue is determined as $(0 - 796.33) - 0 - 45.38 = -841.71$

The 20X3 reconciliation of the financial statements required by paragraph 100 is

Progression of the insurance contract liabilities for remaining coverage and for incurred claims (20X3)

| | <i>Liability for remaining coverage excluding loss component</i> | <i>Liability for remaining coverage: loss component</i> | <i>Liability for incurred claims</i> | <i>Insurance Contract Liability</i> |
|-----------------------------------|--|---|--|---|
| <i>Opening Balance</i> | 796.33 | 0.00 | 0.00 | 796.33 |
| <i>Cash Inflows</i> | 0.00 | 0.00 | 0.00 | 0.00 |
| <i>Insurance revenue</i> | (841.72) | 0.00 | 0.00 | (841.72) |
| <i>Insurance service expenses</i> | 0.00 | 0.00 | 750.00 | 750.00 |
| <i>Investment component</i> | 0.00 | 0.00 | 0.00 | 0.00 |
| <i>Insurance Finance Expenses</i> | 45.38 | 0.00 | 0.00 | 45.38 |
| <i>Cash Outflows</i> | 0.00 | 0.00 | (750.00) | (750.00) |
| <i>Closing Balance</i> | (0.01) | 0.00 | 0.00 | (0.01) |

Summary of the reconciliation exhibits

This illustration shows the reconciliation exhibits for three years, with derivation of the figures.

All years show

- insurance finance expense (stemming from the time value of money)
 - separately for the present value of future cash flows and the contractual service margin
- changes related to current service (the allocation of the contractual service margin to profit or loss)
 - for the reconciliation required by paragraph 101 (source of changes in the fulfilment cash flows)
- insurance revenue (the allocation of the contractual service margin to profit or loss)
 - for the reconciliation required by paragraph 100 (progression of the insurance contract liabilities for remaining coverage and for incurred claims)

If new insurance contracts are written or the estimates of future claims are revised, the reconciliation required by paragraph 101 shows also the changes related to future service (new insurance contracts or future claim estimates), separately for the present value of future cash flows and the risk adjustment for non-financial risk.

Cash inflows (premium) and cash outflows are shown when they occur.

ONEROUS CONTRACTS AND ACQUISITION CASH FLOWS

For non-onerous insurance contracts, the insurance revenue for incurred claims equals the insurance service expense for these claims. The insurance revenue for incurred claims is the portion of the premium expected to compensate for the claims. The insurance revenue for acquisition cash flows is the same as the insurance service expense, even if the insurance contracts are onerous. The difference between the claim expense and the consideration which the insurer expects to receive is the loss component of the liability for remaining coverage; it does not affect the acquisition expenses.

Illustration: An insurer writes a three year insurance contract on January 1, 20X1, with

- premium received of 100 at initial recognition
- acquisition cash flows paid of 15 at initial recognition
- one claim for 120 is expected to occur on December 31, 20X3

The discount rate is 6% *per annum*.

The fulfilment cash flows at initial recognition are $-100 + 15 + 120 / 1.06^3 = 15.75$. The insurance contract is onerous, and the contractual service margin at initial recognition is zero.

- The present value of the acquisition cash flows at initial recognition is 15.
 - The coverage units are the same each year, so this present value is allocated equally by year: 5 each to 20X1, 20X2, and 20X3.
- We amortize these present values to the end of each year:
 - 20X1: $5 \times 1.06^1 = 5.30$
 - 20X2: $5 \times 1.06^2 = 5.62$
 - 20X3: $5 \times 1.06^3 = 5.96$
- The insurance revenue and the insurance service expense for acquisition cash flows are 5.30 in 20X1, 5.62 in 20X2, and 5.96 in 20X3.
- Right after the premium is received, the insurer reports a
 - liability for remaining coverage excluding the loss component of $(100 - 15)$
 - loss component of the liability for remaining coverage of 15.75
- The insurance service expense for the onerous contract loss of 15.75 is recognized in the 20X1 statement of profit or loss.
 - The insurance service result for 20X1 is the insurance revenue minus the insurance service expense $= 0 - 15.75 + (5.30 - 5.30) = -15.75$, which is the loss in the statement of profit or loss
 - The insurance revenue from acquisition expenses always equals the insurance service expense from acquisition expenses
- Both parts of the liability for remaining coverage accrete interest for three years to
 - liability for remaining coverage excluding the loss component of $(100 - 15) \times 1.06^3 = 101.24$
 - loss component of the liability for remaining coverage of $15.75 \times 1.06^3 = 18.76$
 - the total liability for remaining coverage at December 31, 20X3, is $101.24 + 18.76 = 120.00$
- On December 31, 20X3, the insurer reports
 - liability for remaining coverage excluding the loss component: insurance revenue of -101.24, which is the accumulated premium which the insurer receives as consideration for the claim.
 - loss component of the liability for remaining coverage: a contra-expense of -18.76, as a reversal of the accumulated value of the insurance service expense recognized at initial recognition.
 - liability for incurred claims: insurance service expense of 120.
- The insurer reports an insurance service result of -15.75 in 20X1 under the loss component of the liability for remaining coverage. In 20X3:
 - The accumulated value of the onerous contract loss is reversed for the loss component of the liability for remaining coverage.

- The insurance revenue plus the reversal of this loss are offset by 120 insurance service expense reported under the liability for incurred claims.

The liability for remaining coverage on January 1, 20X1 (after the premium is received and the acquisition cash flows are paid) is $120 / 1.06^3 = 100.75$. This liability has two parts:

- The loss component of the liability for remaining coverage = 15.75 (which is the loss at initial recognition)
- The liability for remaining coverage excluding the loss component = $100.75 - 15.75 = 85.00$ (which is the premium received minus the acquisition cash flows paid)

We examine the accretion of interest on the two parts of the liability for remaining coverage. In this illustration, with no risk adjustment for non-financial risk and no changes in the discount rate or the estimated claim, the insurance finance expense is accretion of interest at the 6% discount rate on the two parts of the liability for remaining coverage right after initial recognition.

- The insurance finance expense on the liability for remaining coverage excluding the loss component is
 - 20X1: $(100 - 15) \times 6\% = 5.10$ (the net premium times the discount rate)
 - 20X2: $(100 - 15) \times 1.06^1 \times 6\% = 5.41$ (net premium accumulated for one year times the discount rate)
 - 20X3: $(100 - 15) \times 1.06^2 \times 6\% = 5.73$ (net premium accumulated two years times the discount rate)
 - Accumulated: $85 + 5.10 + 5.41 + 5.73 = 101.24$ (which is the insurance revenue for the claim)
- The insurance finance expense on the loss component of the liability for remaining coverage is
 - 20X1: $15.75 \times 6\% = 0.95$
 - 20X2: $15.75 \times 1.06^1 \times 6\% = 1.00$
 - 20X3: $15.75 \times 1.06^2 \times 6\% = 1.06$
 - Accumulated: $15.75 + 0.95 + 1.00 + 1.06 = 18.76$ (which is the reversal of the onerous contract loss for the claim, or the initial onerous contract loss accumulated to the date the claim occurs)

Insurance revenue for a claim payment is the accumulated net premium for that claim. In this illustration, the net premium is $100 - 15 = 85$, so the accumulated net premium is $85 \times 1.06^3 = 101.24$. The reconciliation exhibits show

- a cash inflow of $100 - 15 = 85$ at December 31, 20X0,
- three years of insurance finance expense on the present value of future cash flows for $5.10 + 5.41 + 5.73 = 16.24$
- insurance revenue of $85 + 16.24 = 101.24$ at December 31, 20X3.

IFRS 17 paragraph 83 says that “Insurance revenue ... reflects the consideration to which the entity expects to be entitled in exchange for [insurance services].” The insurance service (the occurrence of the claim) is at the end of 20X3, so the associated insurance revenue is the net premium for the claim accumulated for the time value of money from the date the premium is received to the date the claim occurs, not the cash premium received for the insurance services.²⁸

The insurance service expense for the claim is the present value of the claim at the occurrence date. In this illustration, the claim is paid when it occurs, so the insurance service expense has two parts:

- the claim payment of 120 at December 31, 20X3
- the reversal of the loss on onerous contracts of -18.76 (a contra-expense).

The insurance service result is the insurance revenue minus the insurance service expense: $101.24 - (120 + -18.76) = 0.00$. The loss on the onerous contracts was recognized immediately (at initial recognition), not deferred until the claim occurs.

- The loss at initial recognition is 15.75.

- The difference of $18.76 - 15.75 = 3.01$ is the insurance finance expense on the loss component of the liability for remaining coverage: $15.75 \times 1.06^3 = 18.76$.

The reconciliations of the insurance contract liability include the amortized acquisition expenses for 20X3 of 5.96 as insurance revenue and insurance service expense, which cancel out in the insurance service result.

ONEROUS MULTI-YEAR CONTRACTS

Onerous contracts show separately the liability for remaining coverage excluding the loss component and the loss component of the liability for remaining coverage. Revenue and expense are allocated between the two parts of the liability for remaining coverage. The allocation procedure here is based on the IFRS 17 *Illustrative Examples*, though other procedures are permitted.

On January 1, 20X1, an insurer issues a group of insurance contracts with three year coverage periods.

- it collects premium of 450 at initial recognition
- it expects one claim for 750 to occur and be paid on December 31, 20X3
- the discount rate for the fulfilment cash flows is 6% *per annum*
- the risk adjustment for non-financial risk is 40 and does not accrete interest
- acquisition cash flows are zero
- the insurer invests the premium in financial assets yielding 8% *per annum*

We show the entries for

- A. The fulfilment cash flows at initial recognition.
- B. The contractual service margin at initial recognition.
- C. The profit or loss at initial recognition.
- D. The insurance contract liability at initial recognition.
- E. The fulfilment cash flows right after the premium is received.
- F. The fulfilment cash flows at December 31, 20X1.
- G. The insurance finance expense on the present value of future cash flows in 20X1.
- H. The insurance contract liability at December 31, 20X1.
- I. The allocation to profit or loss at December 31, 20X1.
- J. The insurance contract liability at December 31, 20X1.
- K. The 20X1 reconciliation of the insurance contract liability required by paragraph 101.
- L. The 20X1 insurance finance expense allocated for the reconciliation of the financial statements.
- M. The 20X1 reconciliation of the insurance contract liability required by paragraph 100.
- N. The insurance finance expense on the present value of future cash flows in 20X2.
- O. The 20X2 reconciliation of the insurance contract liability required by paragraph 101.
- P. The 20X2 insurance finance expense allocated for the reconciliation of the financial statements.
- Q. The 20X2 reconciliation of the insurance contract liability required by paragraph 100.
- R. The insurance finance expense on the present value of future cash flows in 20X3.
- S. The 20X3 reconciliation of the insurance contract liability required by paragraph 101.
- T. The 20X3 insurance finance expense allocated for the reconciliation of the financial statements.
- U. The 20X3 reconciliation of the insurance contract liability required by paragraph 100.

Part A: The fulfilment cash flows are the present value of the net future cash outflows + the risk adjustment for non-financial risk. At initial recognition:

- future premium cash inflows = 450, discounted for 0 years
- future claim cash outflows = 750, discounted for 3 years
- risk adjustment for non-financial risk = 40, not discounted

The fulfilment cash flows = $-450 / 1.06^0 + 750 / 1.06^3 + 40 = 219.71$

Part B: The contractual service margin at initial recognition is the negative of the fulfilment cash flows but not less than zero. The fulfilment cash flows at initial recognition are positive (the contracts are onerous), so the contractual service margin is zero.

Part C: The loss at initial recognition = the fulfilment cash flows if they are positive = 219.71.

- The profit at initial recognition is zero if the insurance contracts are not onerous: one may not recognize income until the insurance services are provided.
- Losses may not be deferred, so the insurer recognizes a loss (in the statement of profit or loss) of 219.71

Part D: The insurance contract liability at initial recognition = the fulfilment cash flows (since the contractual service margin is zero) = 219.71.

For double-entry book-keeping:

- the loss (in the statement of profit or loss) is a debit
- the increase in the insurance contract liability is a credit

Part E: The fulfilment cash flows right after the premium is received = $750 / 1.06^3 + 40 = 669.71$.

Part F: The fulfilment cash flows at December 31, 20X1 = $750 / 1.06^2 + 40 = 707.50$.

Part G: The insurance finance expense on the fulfilment cash flows is

$$(750 / 1.06^2 + 40) - (750 / 1.06^3 + 40) = 37.78$$

The discount rate did not change here, so we can also compute this as $6\% \times 750 / 1.06^3 = 37.78$

Part H: The contractual service margin is zero at initial recognition, so its accretion of interest is also zero, and the contractual service margin at December 31, 20X1, is zero.

For the reconciliation of the insurance contract liability required by paragraph 101 (source of changes in the fulfilment cash flows), the insurance finance expense is

- 37.78 for the present value of future cash outflows
- zero for the contractual service margin.

Part I: The contractual service margin is zero, so no profit or loss is allocated at December 31, 20X1.

Part J: The insurance contract liability at December 31, 20X1, is the fulfilment cash flows + the contractual service margin = $707.50 + 0 = 707.50$

Part L: The insurer reconciles the entries at the beginning and end of the year for

- the present value of future cash outflows
- the risk adjustment for non-financial risk
- the contractual service margin

Each reconciliation shows the

- changes related to future service
- changes related to current service
- insurance finance income or expense

For this exercise, the insurance finance expense is

- present value of future cash flows: 37.78
- contractual service margin: 0

- risk adjustment for non-financial risk: 0

The changes related to future service are

- present value of future cash flows (new contracts) = $-450 / 1.06^0 + 750 / 1.06^3 = 179.71$
- risk adjustment for non-financial risk = 40
- contractual service margin = 0

No claims occur in 20X1, no risk adjustment is released, and no contractual service margin is allocated to profit or loss, so the changes related to current service are

- present value of future cash flows = 0
- risk adjustment for non-financial risk = 0
- contractual service margin = 0

Reconciliation of the insurance contract liability required by paragraph 101 (20X1)

The reconciliation of the insurance contract liability required by paragraph 101 for 20X1 is

Reconciliation of the insurance contract liability: source of changes in the fulfilment cash flows (movements in the insurance contract liabilities analyzed by components) (20X1)

| | <i>Present Value of Future Cash Flows</i> | <i>Risk Adjustment For Non-financial Risk</i> | <i>Contractual Service Margin</i> | <i>Insurance Contract Liability</i> |
|------------------------------------|---|---|---|---|
| <i>Opening Balance</i> | – | – | – | – |
| <i>Changes for Future Service</i> | 179.71 | 40.00 | 0.00 | 219.71 |
| <i>Cash Inflows</i> | 450.00 | | | 450.00 |
| <i>Insurance Finance Expenses</i> | 37.78 | 0.00 | 0.00 | 37.78 |
| <i>Changes for Current Service</i> | 0.00 | 0.00 | 0.00 | 0.00 |
| <i>Cash Outflows</i> | 0.00 | 0.00 | 0.00 | 0.00 |
| <i>Closing Balance</i> | 667.49 | 40.00 | 0.00 | 707.49 |

Tracking the loss component of the liability for remaining coverage

Part L: The contracts are onerous, so the liability for remaining coverage has two parts. At the beginning of the year:

- the loss component of the liability for remaining coverage = 219.71
- the liability for remaining coverage excluding the loss component = $669.71 - 219.71 = 450.00$

We allocate the insurance finance expense proportionately to the two pieces. The proportions are

- loss component of the liability for remaining coverage: $219.71 / (219.71 + 450) = 32.81\%$
- liability for remaining coverage, excluding the loss component: $450 / (219.71 + 450) = 67.19\%$

The allocation of the insurance finance expense is

- the loss component of the liability for remaining coverage: $37.78 \times 32.81\% = 12.40$
- the liability for remaining coverage, excluding the loss component: $37.78 \times 67.19\% = 25.38$

After the allocation of the insurance finance expenses:

- the loss component of the liability for remaining coverage = $219.71 + 12.40 = 232.11$
- the liability for remaining coverage, excluding the loss component: $450 + 25.38 = 475.38$

If the risk adjustment for non-financial risk accretes interest, no new contracts enter or leave the group, no claims occur, and the discount rates remain the same, then the proportional allocation equals the accretion of interest (at 6%) to each part of the liability for remaining coverage. In practical scenarios, the proportional allocation is necessary for several reasons:

- The risk adjustment for non-financial risk may not accrete interest and is not allocated separately from the present value of net cash flows.
- Claims generally occur each year, but they are not specific to the loss component vs the rest of the liability for remaining coverage so we must allocate them to each part.
- Insurance contracts are often added in the year after initial recognition and they may leave the group (by deaths, lapses, and cancellations) any year. Contracts are not specific to the loss component vs the rest of the liability for remaining coverage so we must allocate them to each part.
- If the discount rate changes, we must re-estimate the liability for remaining coverage at the new rate. But the computation of the present values uses the cash flow distribution, which we must allocate to the loss component vs the rest of the liability for remaining coverage.

Reconciliation of the insurance contract liability required by paragraph 100 (20X1)

Part M: The insurer must reconcile

- the liability for remaining coverage, excluding the loss component
- the loss component of the liability for remaining coverage
- the liability for incurred claims

at the beginning and end of the year, showing

- insurance revenue
- insurance service expense
- insurance finance income or expense
- cash inflows and outflows

In 20X1, before the insurance finance expenses for the time value of money, the columns show

- No claims have yet occurred in this exercise, so the liability for incurred claims is zero.
- The loss component of the liability for remaining coverage = $750 / 1.06^3 + 40 - 450 = 219.71$.
- The liability for remaining coverage excluding the loss component is the premium received of 450.

Revenue, expenses, and cash flows are

- insurance revenue = 0 (no allocation of the zero contractual service margin in 20X1)
- insurance service expense = 219.71 (the loss component of the liability for remaining coverage is not deferred but is recognized immediately as a loss in the statement of profit or loss)
- insurance finance income or expense = 37.78
 - the expense increases the liability
 - the insurance finance expense is allocated to the liability for remaining coverage excluding the loss component vs the loss component of the liability for remaining coverage by percentages (see above)
- cash inflows = premium of 450 (in the liability for remaining coverage excluding the loss component)
 - the cash inflow increases the liability

The 20X1 reconciliation of the financial statements required by paragraph 100 is

Progression of the insurance contract liabilities for remaining coverage and for incurred claims (20X1)

| | <i>Liability for remaining coverage excluding loss component</i> | <i>Liability for remaining coverage: loss component</i> | <i>Liability for incurred claims</i> | <i>Insurance Contract Liability</i> |
|-----------------------------------|--|---|--|---|
| <i>Opening Balance</i> | – | – | – | – |
| <i>Cash Inflows</i> | 450.00 | 0.00 | 0.00 | 450.00 |
| <i>Insurance revenue</i> | 0.00 | 0.00 | 0.00 | 0.00 |
| <i>Insurance service expenses</i> | 0.00 | 219.71 | 0.00 | 219.71 |
| <i>Investment component</i> | 0.00 | 0.00 | 0.00 | 0.00 |
| <i>Insurance Finance Expenses</i> | 25.38 | 12.40 | 0.00 | 37.78 |
| <i>Cash Outflows</i> | 0.00 | 0.00 | 0.00 | 0.00 |
| <i>Closing Balance</i> | 475.38 | 232.11 | 0.00 | 707.49 |

Part N: The insurance finance expense on the fulfilment cash flows for 20X2 is

$$(750 / 1.06^1 + 40) - (750 / 1.06^2 + 40) = 40.05$$

The discount rate did not change here, so we can compute this as $6\% \times 750 / 1.06^2 = 40.05$

The contractual service margin is zero, so its insurance finance expense is also zero.

The total insurance finance expense is 40.05.

Reconciliation of the insurance contract liability required by paragraph 101 (20X2)

Part O: The reconciliation of the insurance contract liability required by paragraph 101 for 20X2 is

Reconciliation of the insurance contract liability: source of changes in the fulfilment cash flows (20X2)

| | <i>Present Value of Future Cash Flows</i> | <i>Risk Adjustment For Non-financial Risk</i> | <i>Contractual Service Margin</i> | <i>Insurance Contract Liability</i> |
|------------------------------------|---|---|---|---|
| <i>Opening Balance</i> | 667.49 | 0.00 | 0.00 | 707.49 |
| <i>Changes for Future Service</i> | 0.00 | 0.00 | 0.00 | 0.00 |
| <i>Cash Inflows</i> | 0.00 | 0.00 | 0.00 | 0.00 |
| <i>Insurance Finance Expenses</i> | 40.05 | 0.00 | 0.00 | 40.05 |
| <i>Changes for Current Service</i> | 0.00 | 0.00 | 0.00 | 0.00 |
| <i>Cash Outflows</i> | 0.00 | 0.00 | 0.00 | 0.00 |
| <i>Closing Balance</i> | 707.54 | 0.00 | 0.00 | 747.54 |

Part P: We allocate the insurance finance expense proportionately to the two pieces. The proportions are

- loss component of the liability for remaining coverage: $232.11 / (232.11 + 475.38) = 32.81\%$
- liability for remaining coverage, excluding the loss component: $475.38 / (232.11 + 475.38) = 67.19\%$

No estimates are revised in this illustration, so the proportions are the same in 20X2 as in 20X1.

- If claims are re-estimated upward, the entire change is allocated to the loss component of the liability for remaining coverage, so the proportions for the two parts change.
- If claims are re-estimated downward, the entire change is allocated to the loss component of the liability for remaining coverage until it becomes zero (and the rest becomes the contractual service margin), so the proportions for the two parts change.

The allocation of the insurance finance expense is

- the loss component of the liability for remaining coverage: $40.05 \times 32.81\% = 13.14$
- the liability for remaining coverage, excluding the loss component: $40.05 \times 67.19\% = 26.91$

After the allocation of the insurance finance expenses:

- the loss component of the liability for remaining coverage = $232.11 + 13.14 = 245.25$
- the liability for remaining coverage, excluding the loss component: $475.38 + 26.91 = 502.29$

Reconciliation of the insurance contract liability required by paragraph 100 (20X2)

Part Q: The 20X2 reconciliation of the financial statements required by paragraph 100 is

Progression of the insurance contract liabilities for remaining coverage and for incurred claims (20X2)

| | <i>Liability for remaining coverage excluding loss component</i> | <i>Liability for remaining coverage: loss component</i> | <i>Liability for incurred claims</i> | <i>Insurance Contract Liability</i> |
|-----------------------------------|--|---|--|---|
| <i>Opening Balance</i> | 475.38 | 232.11 | 0.00 | 707.49 |
| <i>Cash Inflows</i> | 0.00 | 0.00 | 0.00 | 0.00 |
| <i>Insurance revenue</i> | 0.00 | 0.00 | 0.00 | 0.00 |
| <i>Insurance service expenses</i> | 0.00 | 0.00 | 0.00 | 0.00 |
| <i>Investment component</i> | 0.00 | 0.00 | 0.00 | 0.00 |
| <i>Insurance Finance Expenses</i> | 26.91 | 13.14 | 0.00 | 40.05 |
| <i>Cash Outflows</i> | 0.00 | 0.00 | 0.00 | 0.00 |
| <i>Closing Balance</i> | 502.29 | 245.25 | 0.00 | |

Part R: The insurance finance expense on the fulfilment cash flows for 20X3 is

$$(750 / 1.06^0 + 40) - (750 / 1.06^1 + 40) = 42.45$$

The discount rate did not change here, so we can also compute this as $6\% \times 750 / 1.06^1 = 42.45$

The insurance finance expense on the contractual service margin for 20X3 is zero.

The total insurance finance expense is 42.45

Reconciliation of the insurance contract liability required by paragraph 101 (20X3)

Part S: The claim for 750 is paid in 20X3, and the risk adjustment for non-financial risk is released.

The reconciliation of the insurance contract liability required by paragraph 101 for 20X3 is

Reconciliation of the insurance contract liability: source of changes in the fulfilment cash flows (20X3)

| | <i>Present Value of Future Cash Flows</i> | <i>Risk Adjustment For Non-financial Risk</i> | <i>Contractual Service Margin</i> | <i>Insurance Contract Liability</i> |
|------------------------------------|---|---|---|---|
| <i>Opening Balance</i> | 707.54 | 40.00 | 0.00 | 747.54 |
| <i>Changes for Future Service</i> | 0.00 | 0.00 | 0.00 | 0.00 |
| <i>Cash Inflows</i> | 0.00 | 0.00 | 0.00 | 0.00 |
| <i>Insurance Finance Expenses</i> | 42.45 | 0.00 | 0.00 | 42.45 |
| <i>Changes for Current Service</i> | 0.00 | (40.00) | 0.00 | (40.00) |
| <i>Cash Outflows</i> | (750.00) | 0.00 | 0.00 | (750.00) |
| <i>Closing Balance</i> | (0.01) | 0.00 | 0.00 | (0.01) |

Part T: We allocate the insurance finance expense proportionately to the two pieces. The proportions are

- loss component of the liability for remaining coverage: $245.25 / (245.25 + 502.29) = 32.81\%$
- liability for remaining coverage, excluding the loss component: $502.29 / (245.25 + 502.29) = 67.19\%$

The allocation of the insurance finance expense is

- the loss component of the liability for remaining coverage: $42.45 \times 32.81\% = 13.93$
- the liability for remaining coverage, excluding the loss component: $42.45 \times 67.19\% = 28.52$

After the allocation of the insurance finance expenses:

- the loss component of the liability for remaining coverage = $245.25 + 13.93 = 259.18$
- the liability for remaining coverage, excluding the loss component: $502.29 + 28.52 = 530.81$

Allocating incurred claims

Part U: The 20X3 claim affects several entries on the reconciliation of the financial statements:

- the accumulated premium received for the claim is recognized as insurance revenue
 - reported under the liability for remaining coverage excluding the loss component
 - the negative entry reduces the liability
- the part of the claim for which the insurer is not compensated by the premium received is the reversal of the accumulated value of the insurance service expense that was recognized at initial recognition
 - reported under the loss component of the liability for remaining coverage
 - the negative entry reduces the liability
- the incurred claim is an insurance service expense
 - reported under the liability for incurred claims
 - the positive entry increases the liability
- the claim payment is a cash outflow
 - reported under the liability for incurred claims
 - the negative entry reduces the liability

The allocation of the 20X3 claim is

- the loss component of the liability for remaining coverage: $750 \times 32.81\% = 246.08$
- the liability for remaining coverage, excluding the loss component: $750 \times 67.19\% = 503.93$

The allocation of the 20X3 release of the risk adjustment for non-financial risk is

- the loss component of the liability for remaining coverage: $40 \times 32.81\% = 13.12$
- the liability for remaining coverage, excluding the loss component: $40 \times 67.19\% = 26.88$

The sum of the 20X3 claim and its release of the risk adjustment for non-financial risk is

- the loss component of the liability for remaining coverage: $246.08 + 13.12 = 259.20$
- the liability for remaining coverage, excluding the loss component: $503.93 + 26.88 = 530.81$

Reconciliation of the insurance contract liability required by paragraph 100 (20X3)

The reconciliation of the financial statements required by paragraph 100 for 20X3 is

Progression of the insurance contract liabilities for remaining coverage and for incurred claims (20X3)

| | <i>Liability for remaining coverage excluding loss component</i> | <i>Liability for remaining coverage: loss component</i> | <i>Liability for incurred claims</i> | <i>Insurance Contract Liability</i> |
|-----------------------------------|--|---|--|---|
| <i>Opening Balance</i> | 502.29 | 245.25 | 0.00 | 747.54 |
| <i>Cash Inflows</i> | 0.00 | 0.00 | 0.00 | 0.00 |
| <i>Insurance revenue</i> | (530.81) | 0.00 | 0.00 | (530.81) |
| <i>Insurance service expenses</i> | 0.00 | (259.18) | 750.00 | 490.82 |
| <i>Investment component</i> | 0.00 | 0.00 | 0.00 | 0.00 |
| <i>Insurance Finance Expenses</i> | 28.52 | 13.93 | 0.00 | 42.45 |
| <i>Cash Outflows</i> | 0.00 | 0.00 | (750.00) | (750.00) |
| <i>Closing Balance</i> | 0.00 | 0.00 | 0.00 | 0.00 |

Rounding errors cause the discrepancy of insurance service expense between the text and the exhibit. The exact figures are:

- Insurance revenue for the liability for remaining coverage excluding the loss component: -530.8232
- Insurance service expense for the loss component of the liability for remaining coverage: -259.1768

Reconciliation exhibits by group of insurance contracts

Multi-line insurers have many groups of insurance contracts. Insurance contracts are in the same portfolio if they are subject to the same risks and are managed together, so portfolios depend on the types of contracts and on the regions in which the coverage is provided. Each portfolio has many groups, since the issue dates of contracts in a portfolio may not differ by more than a year, and onerous contracts are grouped separately from contracts that have no significant probability of becoming onerous and from the remaining contracts.

The accounting entries are determined by group of insurance contracts, so the reconciliation exhibits are best completed by group. For presentation in the financial statements, the reconciliation exhibits are combined:

- for primary insurance contracts vs reinsurance contracts held
- for groups that have insurance contract liabilities vs groups that have insurance contract assets.

CHANGES IN EXPECTED PAYMENTS FOR FUTURE CLAIMS (NOT YET INCURRED)

Re-estimates differ for past claims (already incurred), current claims, and future claims (not yet incurred):

- Re-estimates of *incurred claims* affect the liability for incurred claims.
 - The change is reported in profit or loss and does not affect the contractual service margin.
- An experience adjustment, or the occurrence of a claim for other than its expected value, is a change relating to current service
 - The change is reported in profit or loss and does not affect the contractual service margin.
- Re-estimates of future claims that have *not yet occurred* affect the liability for remaining coverage.
 - If the change (i) does not cause the group of insurance contracts to become onerous and (ii) does not make a group of onerous contracts more or less onerous, the change in the fulfilment cash flows is offset by a change in the contractual service margin and does not affect profit or loss.

The contractual service margin for insurance contracts issued may not be negative.

- If the change causes a non-onerous group of insurance contracts to become onerous, the contractual service margin is reduced to zero and the rest of the change is reported as a loss in profit or loss.
- If the change makes a group of onerous contracts more or less onerous, the change is reported as
 - a loss in profit or loss if the group becomes more onerous
 - profit (a negative loss) in profit or loss if the group becomes less onerous
- If a change makes a group of onerous contracts to become no longer onerous, the part of the change until the group becomes non-onerous is reported as profit (a negative loss) in profit or loss, and the rest of the change creates a contractual service margin.

The following sequence of illustrations shows how re-estimates of claims affect future service.

On January 1, 20X1, an insurer issues a group of insurance contracts with three year contract periods.

- it collects premium of 800 at initial recognition
- it expects one claim for 750 on December 31, 20X3
- the discount rate for the fulfilment cash flows is 6% *per annum*
- the risk adjustment for non-financial risk is 40 and does not accrete interest

We compute the contractual service margin at December 31, 20X1, if the estimate of the future claim is revised on that date to

- A. 650
- B. 850
- C. 950
- D. We compute also the contractual service margin at December 31, 20X2, if the estimate of the claim is revised to 950 on December 31, 20X1, and to 900 on December 31, 20X2.

For each scenario, we compute also the profit or loss from the revision.

Favorable revision

Part A: The fulfilment cash flows at initial recognition are

- future premium cash inflows = 800, discounted for 0 years
- future claim cash outflows = 750, discounted for 3 years
- risk adjustment for non-financial risk = 40, not discounted

The fulfilment cash flows = $-800 / 1.06^0 + 750 / 1.06^3 + 40 = (130.29)$.

The contractual service margin at initial recognition is the negative of the fulfilment cash flows = 130.29, since the contracts are not onerous.

The insurance finance expense on the contractual service margin is $130.29 \times 6\% = 7.82$, and the contractual service margin after the accretion of interest = $130.29 \times 106\% = 138.11$.

The insurance finance expense is the discount rate \times the contractual service margin at the beginning of the year. The claim is re-estimated at the end of the year, so the change in the contractual service margin at the end of the year (shown below) does not affect the insurance finance expense during the year.

A decrease in the estimated cash outflows causing a reduction in the fulfilment cash flows

- is recognized in profit or loss if it relates to current or past service (such as an incurred claim)
- if offset by an increase in the contractual service margin if it relates to future service (as in this illustration)

On December 31, 20X1, the fulfilment cash flows decrease by $(750 - 650) / 1.06^2 = 89.00$, so the contractual service margin increases by 89.00 to $138.11 + 89.00 = 227.11$.

In this illustration, the discount rate does not change in 20X1, so the change to the contractual service margin exactly offsets the change to the fulfilment cash flows. If the discount rate changes, the fulfilment cash flows use the current discount rate and the contractual service margin uses the discount rate determined at initial recognition of the insurance contracts. If the discount rate changes from 6% at the beginning of 20X1 to 8% at the end of 20X1, the contractual service margin increases by $(750 - 650) / 1.06^2 = 89.00$, but the fulfilment cash flows decrease by $(750 - 650) / 1.08^2 = 85.73$. This difference is analogous to that between the accretion of interest on the contractual service margin, which uses the discount rate determined at initial recognition of the insurance contracts, and the insurance finance expense on the fulfilment cash flows, which uses the current discount rates at the beginning and end of the year.

The allocation of the contractual service margin to profit or loss uses the values after the re-estimate of claims.

- The contractual service margin is allocated to profit or loss evenly over the three years.
- The allocation to 20X1 is $227.11 / 3 = 75.70$.
- The contractual service margin after the allocation to profit or loss = $227.11 - 75.70 = 151.41$.

The order of this sequence is

- accrete interest on the contractual service margin at the beginning of the year
- adjust the contractual service margin for the claim re-estimate
- allocate the adjusted contractual service margin (with the accretion of interest) to profit or loss²⁹

Adverse revision (non-onerous)

Part B: The contractual service margin at initial recognition, the insurance finance expense on the contractual service margin, and the contractual service margin after the accretion of interest are the same as for Part A.

An increase in the estimated cash outflows causing an increase in the fulfilment cash flows

- is recognized in profit or loss if it relates to current or past service (such as an incurred claim)

- if offset by a decrease in the contractual service margin if it relates to future service and the contractual service margin remains positive (as in this part of the illustration).

On December 31, 20X1, the fulfilment cash flows increase by $(850 - 750) / 1.06^2 = 89.00$, so the contractual service margin decreases by 89.00 to $138.11 - 89.00 = 49.11$.

- The contractual service margin is allocated to profit or loss evenly over the three years.
- The allocation to 20X1 is $49.11 / 3 = 16.37$
- The contractual service margin after the allocation to profit or loss = $49.11 - 16.37 = 32.74$.

Adverse revision (onerous)

Part C: The contractual service margin at initial recognition, the insurance finance expense on the contractual service margin, and the contractual service margin after the accretion of interest are the same as for Part A.

An increase in the estimated cash outflows causing an increase in the fulfilment cash flows related to future service decreases the contractual service margin but not below zero. The remaining part of the increase in the fulfilment cash flows is recognized in profit or loss and becomes the loss component of the liability for remaining coverage. Similarly, an increase in the estimated cash outflows causing an increase in the fulfilment cash flows related to future service for a group of onerous contracts (whose contractual service margin is already zero) is added to the loss component of the liability for remaining coverage.

On December 31, 20X1, the fulfilment cash flows increase by $(950 - 750) / 1.06^2 = 178.00$.

- The contractual service margin decreases from 138.11 to zero.
- The remaining increase in the fulfilment cash flows is recognized as a loss in the statement of profit or loss: $178 - 138.11 = 39.89$.

For the reconciliation of the insurance contract liability, this loss is a change related to future service (labeled as a loss on onerous contracts).

- The fulfilment cash flows are now $950 / 1.06^2 + 40 = 885.50$.
 - Note: $707.50 + 178.00 = 885.50$
- The contractual service margin is zero, so the insurance contract liability is $885.50 + 0 = 885.50$.
- The liability for remaining coverage is divided between
 - the loss component of the liability for remaining coverage = 39.89
 - the liability for remaining coverage excluding the loss component = $885.50 - 39.89 = 845.61$.

The liability for remaining coverage excluding the loss component is the accumulated value of the premium received: $(800 - 40) \times 1.06 + 40 = 845.60$. The risk adjustment for non-financial risk of 40 does not accrete interest in this illustration.

The loss component of the liability for remaining coverage was zero at the beginning of the year, so we can not derive the insurance finance expense on the loss component as the accretion of interest on the beginning value. IFRS 17 uses the proportionate method, but the insurer may decide the order as

- first adjust the loss component for the re-estimate of future cash flows and then allocate the insurance finance expense (as though the re-estimate of the cash flows occurs at the beginning of the year)
- first allocate the insurance finance expense and then adjust the loss component for the re-estimate of future cash flows (as though the re-estimate of the cash flows occurs at the end of the year)

In practice, accountants compile figures at valuation dates and may not know when the re-estimates occur.

The division between (i) the loss component of the liability for remaining coverage and (ii) the liability for remaining coverage excluding the loss component is used for the reconciliation of the financial statements.

Tracking the loss component

Part D: On December 31, 20X1, the present value of future cash flows is $950 / 1.06^2 = 845.50$. The present value of future cash flows here is the fulfilment cash flows minus the risk adjustment for non-financial risk.

The allocation percentages for 20X2 (computed in Part C) are

- the loss component of the liability for remaining coverage: $39.89 / (39.89 + 845.61) = 4.50\%$
- the liability for remaining coverage excluding the loss component: $845.61 / (39.89 + 845.61) = 95.50\%$

The insurance finance expense in 20X2 is $845.50 \times 6\% = 50.73$, which is allocated proportionately:

- the loss component of the liability for remaining coverage: $50.73 \times 4.50\% = 2.28$
- the liability for remaining coverage excluding the loss component $50.73 \times 95.50\% = 48.45$

The liability for remaining coverage at December 31, 20X2, is

- the loss component of the liability for remaining coverage: $39.89 + 2.28 = 42.17$
- the liability for remaining coverage excluding the loss component $845.61 + 48.45 = 894.06$

The estimate of the claim is revised on December 31, 20X2, from 950 to 900, so the liability for remaining coverage decreases by $(950 - 900) / 1.06^1 = 47.17$.

- If the decrease in the fulfilment cash flows is less than the loss component of the liability for remaining coverage, the decrease is applied entirely to the loss component of the liability for remaining coverage.
 - The decrease reduces the loss component and is reported as profit (negative loss) in profit or loss.
- If the decrease in the fulfilment cash flows is more than the loss component of the liability for remaining coverage (as in this illustration), the decrease is applied first to the loss component, bringing it to zero.
 - The change in the loss component is recognized as profit in the statement of profit or loss of 42.17.
- The remaining $47.17 - 42.17 = 5.00$ is applied to the liability for remaining coverage excluding the loss component, bringing it to $894.06 - 5.00 = 889.06$.
 - This 5.00 is not recognized in profit or loss but is added to the contractual service margin, changing it from zero to 5.

The contractual service margin of 5.00 is allocated to profit or loss in proportion to the coverage units, which are assumed the same for each year in this exercise. Only 20X2 and 20X3 remain, so 2.50 is allocated to profit or loss in 20X2 and the contractual service margin at December 31, 20X2, is $5.00 - 2.50 = 2.50$.

Insurance revenue is recognized for claims and other services for which the insurer expects to receive consideration as the accumulated value of the premium.³⁰

For simplicity, assume the discount rate is zero, premium of 100 is received on January 1, 20X1, and a claim for 400 is expected to be incurred and paid on December 31, 20X2. The zero discount rate clarifies the entries for insurance revenue and insurance service expense by eliminating all insurance finance expense.

- In 20X1, insurance revenue is zero, cash increases 100, the insurance contract liability increases 400, and the insurance service expense is $400 - 100 = 300$ (recognized in profit or loss).
 - No insurance services are provided in 20X1 (no claim is incurred), so the insurance revenue is zero, but the anticipated loss of 300 may not be deferred and instead it is recognized immediately.
- In 20X2, insurance revenue is 100 (shown as a negative entry on the reconciliation exhibits).
 - The (accumulated) premium received for the claim is the insurance revenue.

- The loss component of the liability for remaining coverage is eliminated, and the insurer shows an expense of -300 in profit or loss (reversing the expense of +300 the previous year).
- An insurance service expense of 400 is reported for the incurred claim.
- The cash outflow of 400 reduces the insurance contract liability to zero.

We show the credit and debits is the two years. For 20X1:

- The cash inflow (premium of 100) increases the cash asset for a debit of 100.
- The insurance service expense of 300 is a debit of 300.
- The insurance contract liability increases 400, for a credit of 400.

Debits of 400 = credits of 400. The statement of financial position shows a net credit of $400 - 100 = 300$, and the statement of profit or loss shows a net debit (a loss) of 300.

For 20X2:

- Insurance revenue (the accumulated premium received for the claim) is a credit of 100.
- Reversing the insurance service expense of 300 on the liability for remaining coverage is a credit of 300.
- The insurance service expense of 400 on the liability for incurred claims is a debit of 400.
- The cash outflow reduces the cash asset for a credit of 400.
- The insurance contract liability decreases 400 for a debit of 400.

The statement of financial position shows a net credit of $400 - 400 = 0$, and the statement of profit or loss shows a net debit of $-100 + -300 + 400 = 0$.

If the discount rate is 6% *per annum* instead of zero, the insurance finance expense is offset by insurance revenue or insurance service expense.

- The insurance finance expense on the liability for remaining coverage excluding the loss component is $100 \times 6\% = 6.00$ in 20X1 and $100 \times 1.06 \times 6\% = 6.36$ in 20X2.
- The insurance revenue in 20X2 is the accumulated value of the premium, or $100 \times 1.06^2 = 112.36$, which equals $100 + 6.00 + 6.36$, which is the premium received plus the insurance finance expense on the liability for remaining coverage excluding the loss component.
- The loss component of the liability for remaining coverage at January 1, 20X1 = $400/1.06^2 - 100 = 256.00$.
- The insurance finance expense on the loss component of the liability for remaining coverage is $256 \times 6\% = 15.36$ in 20X1 and $256 \times 1.06 \times 6\% = 16.28$ in 20X2.
- The reversal of the loss component of the liability for remaining coverage on December 31, 20X2, is $256 \times 1.06^2 = 287.64$, which is $256 + 15.36 + 16.28 = 287.64$.
- When the claim occurs on December 31, 20X2, but before it is paid, the liability for incurred claims is 400, which is the insurance revenue plus reversal of the loss component of the liability for remaining coverage = $112.36 + 287.64 = 400.00$.

CHANGES IN ESTIMATED CLAIMS

An insurance contract issued on December 31, 20X0:

- One claim is expected to be incurred and paid on December 31, 20X5, for 100.
 - The premium is received and acquisition cash flows are paid at initial recognition.
 - The discount rate at initial recognition is 6% *per annum*.
 - The contractual service margin at initial recognition is 35.
 - The coverage units are the same from 12/31/20X0 through 12/31/20X5.
- On December 31, 20X1, the insurer revises the estimate of the claim payment to 120.

We compute the following entries:

- A. The fulfilment cash flows at initial recognition.
- B. The contractual service margin on December 31, 20X1, before the allocation to profit or loss.
- C. The contractual service margin on December 31, 20X1, after the allocation to profit or loss.
- D. The allocation to profit or loss in 20X2 and 20X3 if the estimated claim does not change further.
- E. The 20X1 profit or loss if the revised estimate of the claim is 180 on December 31, 20X1.

Part A: At initial recognition, the contractual service margin is the negative of the fulfilment cash flows (capped from below at zero). The contractual service margin at initial recognition is 35, so the fulfilment cash flows are -35 : the present value of future cash outflows (including the acquisition cash flows) plus the risk adjustment for non-financial risk is 35 less than the present value of future cash inflows.

The present value of the cash outflows for claims is $100 / 1.06^5 = 74.73$, but the exercise does not specify the risk adjustment for non-financial risk, the directly attributable acquisition cash flows, or premium cash inflows.

- If the risk adjustment for non-financial risk is 20 and the acquisition cash flows are zero, the premium received is $35 + 20 + 0 + 74.73 = 129.73$.
- If the risk adjustment for non-financial risk is 10 and the acquisition cash flows are 15, the premium received is $35 + 10 + 15 + 74.73 = 134.73$.

Part B: The change in the contractual service margin has two parts:

- The insurance finance expense on the contractual service margin (the time value of money).
- The change in the future cash outflows (the revised estimate of the claim payment).

The accretion of interest on the contractual service margin is the contractual service margin at the beginning of the year \times the discount rate determined at initial recognition $= 35 \times 6\% = 2.10$. The contractual service margin before the change in the present value of future cash outflows is $35 + 2.10 = 37.10$.

The change in the estimated present value of the claim using the discount rate determined at initial recognition is $(120 - 100) / 1.06^4 = 15.84$, so the contractual service margin decreases by 15.84 (but may not fall below zero). The contractual service margin after the change in the present value of future cash outflows but before the allocation to profit or loss is

$$35 + 2.10 - 15.84 = 21.26.$$

Part C: The insurance units are the same for the five years December 31, 20X0, through December 31, 20X5. The contractual service margin of 21.26 is spread evenly over the five years as $21.26 / 5 = 4.25$ allocated to profit in 20X1. The contractual service margin after the allocation to profit or loss is $21.26 - 4.25 = 17.01$.

Part D: Each year, the contractual service margin accretes interest before the allocation to profit or loss.

- 20X2:
 - the accretion of interest is $6\% \times 17.01 = 1.02$
 - the contractual service margin before the allocation to profit or loss is $17.01 + 1.02 = 18.03$
 - the allocation to profit or loss is $18.03 / 4 = 4.51$
 - the contractual service margin after the allocation to profit or loss is $18.03 - 4.51 = 13.52$
- 20X3:
 - the accretion of interest is $6\% \times 13.52 = 0.81$
 - the contractual service margin before the allocation to profit or loss is $13.52 + 0.81 = 14.33$
 - the allocation to profit or loss is $14.33 / 3 = 4.78$
 - the contractual service margin after the allocation to profit or loss is $14.33 - 4.78 = 9.55$

The nominal allocation to profit or loss increases each year; the present values are the same.³¹

- $4.25 \times 1.06 = 4.51$
- $4.51 \times 1.06 = 4.78$

Part E: The change in the estimated present value of the claim using the discount rate determined at initial recognition is $(180 - 100) / 1.06^4 = 63.37$, so the contractual service margin decreases by 63.37 but may not fall below zero.

- The contractual service margin is the greater of (i) zero or (ii) $35 + 2.10 - 63.37 = -26.27$
- The -26.27 is recognized in profit or loss, and the contractual service margin becomes zero.

In theory, the occurrence date of the claim affects the timing of recognition in the statement of profit or loss.

- If the claim occurs before the estimated claim payment is revised, the full change in the estimated claim payment is recognized in profit or loss.
- A change in the estimate of claims that have not yet occurred is first offset by changes in the contractual service margin.

Accountants know the year (or half-year or quarter-year) of a change, not the day. If the occurrence date and the revision of the estimated claim payment are in the same year (or half-year or quarter-year), the occurrence date is often presumed to come first.

Illustration: If the occurrence date and the revision of the estimated claim payment are both in 20XX, the claim is assumed to occur first and the revision of the estimated claim payment is for an incurred claim, so the entire revision is recognized in profit or loss.³²

The rules governing the recognition of profit or loss from estimates of future claims are

- If the present value of the estimated claim payment decreases, the contractual service margin increases to offset, and the immediate profit is zero. However, the greater contractual service margin causes a greater allocation each year to profit or loss, as the profit is earned over the contract period, and some this profit is allocated to the current year.
- If the present value of the estimated claim payment increases, the contractual service margin decreases to offset, but does not become negative. The excess of the increase in the present value of the estimated claim payment over the decrease in the contractual service margin is recognized in profit or loss.

Accounting for claim payments

An insurance contract has one claim expected on December 1, 20X1, for 100. The claim occurs on that day and is paid on December 15 for 100. The expected claim (plus the risk adjustment for non-financial risk) is covered by the premium, so the contractual service margin is positive.³³ We show

- A. The ledger entries on December 1
- B. The ledger entries on December 15

The accounting ledger is updated when the claim occurs or is paid; the financial statements are updated at valuation dates.

Part A: The occurrence of the claim causes

- a reduction in the liability for remaining coverage = insurance revenue
- an offsetting increase in the liability for incurred claims = insurance service expense

The net insurance service result is zero, and the change to profit or loss is zero.

Part B: The payment of the claim causes

- a reduction in the liability for incurred claims
- an offsetting reduction in the cash asset

No revenue or expense is reported.

- The occurrence of a claim for its expected value causes offsetting credits (insurance revenue) and debits (insurance service expense), but no profit or loss.
- The payment of a claim for its incurred value (plus any insurance finance expense from the occurrence date to the payment date) does not affect profit or loss.
- The profit or loss from the insurance contract is the allocation of the contractual service margin plus any release of the risk adjustment for non-financial risk.

Re-estimates of incurred claims

An insurer re-estimates the liability for an incurred claim from 200 to 300. We show the effects on

- A. The insurance contract liability
- B. The contractual service margin
- C. Insurance finance income or expense
- D. The statement of profit or loss

Part A: The insurance contract liability has two parts:

- The liability for remaining coverage
- The liability for incurred claims

The liability for remaining coverage does not change. The liability for incurred claims increases 100.

Part B: The contractual service margin reflects the expected profit on the unearned portion of the contract (the remaining coverage). Changes in the liability for incurred claims do not affect the contractual service margin.

Part C: Insurance finance income or expense reflects the effect of the time value of money, or the accretion of interest on discounted values if the discount rate does not change. The liability for incurred claims is a present value, so the insurance finance expense in future periods increases by the discount from the claim cost. On the day the claim is re-estimated, the insurance finance expense does not change.

Part D: The statement of profit or loss shows a loss for the present value of $300 - 200 = 100$ when the claim is re-estimated. If the claim will be paid in one year and the current discount rate is 6% *per annum*, the loss when the claim is re-estimated is $100 / 1.06^1 = 94.34$, and the additional insurance finance expense the next year is $94.34 \times 6\% = 5.66$.

- Changes to the liability for remaining coverage affect the contractual service margin if it is more than zero.
 - If the contractual service margin becomes negative, further changes affect profit or loss.
- Changes to the liability for incurred claims affect profit or loss immediately.

The loss in the statement of profit or loss is a debit, and the increase in the liability for incurred claims is a credit.

End-notes:

¹ It is also referred to as the “reconciliation between the amounts recognised in the statement of financial position and the statement of profit or loss” in the IFRS 17 *Illustrative Examples* paragraph IE92.

² IFRS 17 *Illustrative Examples* paragraph IE91 says that the insurer “the entity analyses the source of changes in the fulfilment cash flows during the year to decide whether each change adjusts the contractual service margin ... using this information ... for the reconciliation of the insurance contract liability required by paragraph 101.”

³ Insurance contracts issued generally have insurance contract liabilities and reinsurance contracts held generally have reinsurance contract assets.

⁴ See IFRS 17 paragraph B97: “An entity shall not adjust the contractual service margin ... for the following changes in fulfilment cash flows because they do not relate to future service: (a) the effect of the time value of money and changes in the time value of money and the effect of financial risk and changes in financial risk (being the effect, if any, on estimated future cash flows and the effect of a change in discount rate).”

⁵ See IFRS 17 paragraph IN6(d)(ii); IFRS 17 paragraph 38: “The contractual service margin ... represents the unearned profit the entity will recognise as it provides services in the future”; and IFRS 17 *Basis for Conclusions* paragraph BC284: “The contractual service margin represents the unearned profit arising from a group of insurance contracts.”

⁶ See IFRS 17 paragraph IN6(e): “If a group of contracts is or becomes loss-making, an entity recognises the loss immediately.” See IFRS 17 *Basis for Conclusions* paragraph BC21: “If a group of contracts is onerous on initial recognition, IFRS 17 requires an entity to recognise a loss immediately (see paragraph BC284).” See IFRS 17 *Basis for Conclusions* paragraph BC219: “The contractual service margin cannot depict unearned losses. Instead, IFRS 17 requires an entity to recognise a loss in profit or loss for any excess of the expected present value of the future cash outflows above the expected present value of the future cash inflows, adjusted for risk.”

⁷ If the risk adjustment for non-financial risk is computed by the cost of capital method, the present value at a risk-free rate is converted to a net present value at the cost of capital.

⁸ The IFRS 17 *Basis for Conclusions* paragraph 224(b) equates the terms *onerous* and *loss-making*. The IFRS 17 *Basis for Conclusions* Appendix A (Summary of changes since the 2013 Exposure Draft), says that IFRS 17 “revised the requirements to require disaggregation of a portfolio of insurance contracts at initial recognition into groups of insurance contracts that are onerous, *profitable* with no significant possibility of becoming onerous and other *profitable contracts*...,” relating profitable with non-onerous.

⁹ Similarly, if a firm pays interest of 100 on its debt, it incurs interest expense of 100 (a debit) on the statement of profit or loss. The offsetting credit is the reduction of the cash asset by 100.

¹⁰ See IFRS 17 paragraph IN5(b): “The IFRS 17 approach ... presents insurance service results (including presentation of insurance revenue) separately from insurance finance income or expenses.”

¹¹ See IFRS 17 *Effects Analysis* page 82 and the exhibit on page 83, note (b): “(b) the effect of discounting ... is reported as ‘insurance finance expenses’ within the ‘net financial result’ when applying IFRS 17,” and note (c): “when applying IFRS 17, key drivers of profit of the group of insurance contracts—namely the ‘insurance service result’ and the ‘net financial result’—are presented separately to better explain the profitability of that group.” The net financial result is part of the IFRS statement of profit or loss; it is not mentioned in the text of IFRS 17. See also the exhibits in IFRS 17 *Effects Analysis* pages 118, 120, 121, and

123. The exhibit on page 123 notes that “the interest accreted on the discounted claims liabilities is presented as part of the net financial result.”

¹² See the posting on the risk adjustment for non-financial risk for when the risk adjustment accretes interest or does not accrete interest.

¹³ See IFRS 17 paragraph B72(b): “to determine the interest to accrete on the contractual service margin ... [the issuer uses] the discount rates determined at the date of initial recognition ...”

¹⁴ See IFRS 17 paragraph B97: “An entity shall not adjust the contractual service margin ... for the following changes in fulfilment cash flows because they do not relate to future service: (a) the effect of the time value of money and changes in the time value of money and the effect of financial risk and changes in financial risk (being the effect, if any, on estimated future cash flows and the effect of a change in discount rate).” The IFRS 17 paragraph means that the passage of time (time value of money) and changes in the current discount rate adjustment techniques change the fulfilment cash flows but those changes are not offset by opposite changes in the contractual service margin.

¹⁵ See IFRS 17 paragraph 46: “To the extent that changes in the contractual service margin do not offset changes in the fulfilment cash flows for the liability for remaining coverage, an entity shall recognise income and expenses for the changes.”

¹⁶ See IFRS 17 paragraph B72(c).

¹⁷ See IFRS 17 *Basis for Conclusions* paragraph BC352: “insurance revenue can also be analysed as the total of the changes in the liability for remaining coverage in the period that relate to coverage or other services for which the entity expects to receive consideration. Those changes include insurance service expenses incurred in the period, the change in the risk adjustment for non-financial risk and the amount of the contractual service margin allocated to the period.” On the insurance service expenses, see IFRS 17 paragraph 42(a): “An entity shall recognise ... in the carrying amount of the liability for incurred claims ... insurance service expenses for the increase in the liability because of claims and expenses incurred in the period ...”

¹⁸ See IFRS 17 paragraph 101: “An entity shall ... disclose reconciliations from the opening to the closing balances separately for each of: (a) the estimates of the present value of the future cash flows; (b) the risk adjustment for non-financial risk; and (c) the contractual service margin.”

¹⁹ See IFRS 17 paragraph 104(a): “An entity shall separately disclose ... changes that relate to future service ... showing separately (i) changes in estimates that adjust the contractual service margin; (ii) changes in estimates that do not adjust the contractual service margin, ie losses on groups of onerous contracts and reversals of such losses; and (iii) the effects of contracts initially recognised in the period.

²⁰ See IFRS 17 paragraph 104(b): “An entity shall separately disclose ... changes that relate to current service, ie: (i) the amount of the contractual service margin recognised in profit or loss to reflect the transfer of services; (ii) the change in the risk adjustment for non-financial risk that does not relate to future service or past service; and (iii) experience adjustments ...”

²¹ See IFRS 17 paragraph 104(c): “An entity shall separately disclose ... changes that relate to past service, ie changes in fulfilment cash flows relating to incurred claims...”

²² See IFRS 17 paragraph 105(a): “... an entity shall also disclose ... cash flows in the period, including: (i) premiums received for insurance contracts issued (or paid for reinsurance contracts held); (ii) insurance acquisition cash flows; and (iii) incurred claims paid and other insurance service expenses paid for insurance contracts issued (or recovered under reinsurance contracts held) ...”

²³ See IFRS 17 paragraph 105(c).

²⁴ See Illustrations 1 and 2 in the IFRS 17 *Effects Analysis*.

²⁵ See IFRS 17 paragraph 83: “Insurance revenue shall depict the provision of coverage ... at an amount that reflects the consideration to which the entity expects to be entitled in exchange for those services.”

²⁶ See IFRS 17 paragraph B120: “the total insurance revenue for a group of insurance contracts is the consideration for the contracts, ie the amount of premiums paid to the entity adjusted for a financing effect.” Adjusting for a financing effect means accumulating at the appropriate discount rate.

²⁷ See IFRS 17 paragraph B121: “... insurance revenue [is] recognised in a period to depict the transfer of promised services at an amount that reflects the consideration to which the entity expects to be entitled in exchange for those services. The total consideration for a group of contracts covers the following amounts:

(a) amounts related to the provision of services, comprising:

- (i) insurance service expenses, excluding any amounts allocated to the loss component of the liability for remaining coverage;
- (ii) the risk adjustment for non-financial risk, excluding any amounts allocated to the loss component of the liability for remaining coverage; and
- (iii) the contractual service margin.

(b) amounts related to insurance acquisition cash flows.

²⁸ See IFRS 17 *Basis for Conclusions* paragraph BC35: “... the total insurance revenue presented over the duration of the group of insurance contracts is the same as the premiums received for services, adjusted for a financing component.” The “financing component” is the accumulation of the premium for the time value of money.

²⁹ See IFRS 17 *Basis for Conclusions* paragraph BC279(b): “The Board considered whether ... the contractual service margin should be allocated before any adjustments made because of changes in fulfilment cash flows that relate to future service. However, the Board concluded that allocating the amount of the contractual service margin adjusted for the most up-to-date assumptions provides the most relevant information about the profit earned from service provided in the period and the profit to be earned in the future from future service.”

³⁰ See IFRS 17 paragraph 83: “An entity shall present in profit or loss insurance revenue arising from the groups of insurance contracts issued. Insurance revenue shall depict the provision of coverage and other services arising from the group of insurance contracts at an amount that reflects the consideration to which the entity expects to be entitled in exchange for those services.”

³¹ IFRS 17 *Illustrative Examples* Example #2, note (e) to the table after paragraph IE17 shows an alternative method that allocates the contractual service margin equally among the years as

$$21.26 / (1 + 1 / 1.06 + 1 / 1.06^2 + 1 / 1.06^3 + 1 / 1.06^4) = 4.76.$$

³² IFRS 17 uses the terms past, current, and future to refer to past accounting periods, the current accounting period, and future accounting periods. The contractual service margin is adjusted only for changes related to future accounting periods.

³³ The fulfilment cash flows at initial recognition are negative, so the insurance contract is not onerous.