

Financial accounting module 21: Contractual service margin

(The attached PDF file has better formatting.)

[The final exam does not test onerous contracts. Focus on the illustrations in this reading, which cover the procedures need for final exam problems.]

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The final exam problems ask you to compute (i) the contractual service margin both at initial recognition and at later valuation dates and (ii) the allocation of the contractual service margin to profit or loss. You are not responsible for the section on foreign currencies or for the end-notes in this posting (which cite the text of IFRS 17).

CONTRACTUAL SERVICE MARGIN AT INITIAL RECOGNITION

Revenue from insurance contracts (insurance revenue) is recognized as insurance services are provided. The contractual service margin is the unearned profit at initial recognition of a group of insurance contracts, or the anticipated profit that will be earned as the insurance services are provided.¹ At later dates, the contractual service margin is the anticipated profit that will be earned from future services.²

If the fulfilment cash flows (the present value of future cash *outflows* plus the risk adjustment for non-financial risk minus the present value of future cash *inflows*) at initial recognition are negative, the insurance contracts are expected to be profitable.³ Instead of recognizing the profit at initial recognition, the insurer holds the profit as the contractual service margin and allocates it to profit or loss as the insurance services are provided.⁴

If the fulfilment cash flows at initial recognition are positive (that is, a net outflow), the insurer believes the insurance contracts are unprofitable, called *onerous contracts*. The expected loss is recognized immediately in profit or loss, and the contractual service margin is zero.⁵

Some insurance acquisition cash flows precede the initial recognition of the insurance contracts. Underwriters review insurance applications before the policies are issued, and underwriting expenses (salaries and office expenses) may be incurred before the insurance contracts are recognized. Acquisition cash flows that occur before the insurance contracts are recognized cannot be included in the fulfilment cash flows for the contracts.

These acquisition cash flows are capitalized as an acquisition cost asset, and the asset is derecognized when the insurance contracts are recognized.⁶

Coverage units

IFRS 17 refers to the contractual service margin at initial recognition as the unearned profit in the insurance contracts.⁷ The profit is recognized in proportion to the coverage units. Coverage units are defined by IFRS 17 as “the quantity of coverage provided by the contracts in the group, determined by considering for each contract the quantity of the benefits provided under a contract and its expected coverage duration.”⁸

The quantity of the benefits provided may be computed as either

- ! the number of contracts times the exposure per contract (for general insurance)
- ! the number of contracts times the amount of insurance per contract (for life insurance)

or as the pure premium (for general insurance) and the net premium (for life insurance).

Exposures and amount of insurance do not consider differences in the probability of loss among policyholders; pure premiums and net premiums do consider differences in the probability of loss among policyholders.

Illustration: A group has two life insurance contracts:

- ! a three year contract for a young policyholder with a death benefit of 400 and a mortality rate of 1%
- ! a two year contract for an older policyholder with a death benefit of 200 and a mortality rate of 5%

Based on exposures (death benefits), the coverage units for the three years are $3 \times 400 + 2 \times 200 = 1,600$. The percentages by year are $600 / 1,600 = 37.50\%$, $600 / 1,600 = 37.50\%$, and $400 / 1,600 = 25.00\%$.

Based on net premiums (death benefits \times mortality rates), the coverage units for the three years are

$$3 \times 400 \times 1\% + 2 \times 200 \times 5\% = 32.00.$$

The percentages by year are $14 / 32 = 43.75\%$, $14 / 32 = 43.75\%$, and $4 / 32 = 12.50\%$. (In the first two years, $400 \times 1\% + 200 \times 5\% = 14$; in the third year, $400 \times 1\% = 4$.)

The determination of coverage units may depend on the data available. Some insurers know the expected costs by group of insurance contracts and by year but not the exposures.

- ! The net premium (the pure premium for general insurance) is the premium received minus the acquisition cash flows. The premium received and the acquisition cash flows are used for IFRS 17 computations, so the net premium is available.
- ! Exposures and death benefits are coded on the insurance contract records but not in aggregate files. Aggregate exposures by group and by year may not always be available.

Other insurers know their exposures and insurance in-force by year and use them as coverage units.

The coverage units in a group of insurance contracts may change for several reasons, not just mortality. The addition of insurance contracts to a group increases the coverage units; lapses and cancellations decrease the coverage units.

Illustration: A group comprises insurance contracts issued over a period of one year or less. If a group covers insurance contracts issued from July 1, 20X1, through June 30, 20X2, the coverage units in 20X1 stem from the insurance contracts issued from July 1, 20X1, through December 31, 20X1, whereas the coverage units

in 20X2 stem from the insurance contracts issued from July 1, 20X1, through June 30, 20X2. Deaths, lapses, and cancellations in 20X1 decrease the coverage units in 20X2.

Remeasurement of the contractual service margin at later valuation dates is covered in later illustrations.

Contractual service margin: base scenario

For the base scenario, an insurer writes a two-year policy on December 31, 20X0, and expects to

- ! receive on December 31, 20X0, premium of 250
- ! incur and pay two claims:
 - " one on December 31, 20X1, for 100
 - " one on December 31, 20X2, for 150

The discount rate for this insurance contract is 6% *per annum*. For simplicity, the acquisition cash flows and the risk adjustment for non-financial risk are zero and the coverage units are the same in both years.

Initial recognition: The contractual service margin at initial recognition is the expected profit: the present value of cash inflows (premiums) minus the present value of cash outflows (claims, benefits, and other expenses), but not less than zero. If the insurance contract has acquisition cash flows or risk adjustments for non-financial risk, they are included with the present value of future cash outflows in the fulfilment cash flows.⁹

The fulfilment cash flows at initial recognition are $-250 + 100 / 1.06^1 + 150 / 1.06^2 = -22.16$, so the unearned profit at initial recognition is $250 - 100 / 1.06^1 - 150 / 1.06^2 = 22.16$, and the contractual service margin at December 31, 20X0, is 22.16.

If the expected claim amount at December 31, 20X2, were 200 instead of 150, the insurance contract would be onerous, the expected profit at initial recognition would be $250 - 100 / 1.06^1 - 200 / 1.06^2 = -22.34$, the contractual service margin at December 31, 20X0, would be zero, the loss component of the liability for remaining coverage would be 22.34, and the 20X0 statement of profit or loss would show a loss of -22.34.

Accretion of interest: Interest accretes on the contractual service margin at the discount rate determined at initial recognition.

- ! The insurance finance expense on the present value of future cash flows uses the current discount rate (updated at each valuation date), which is
 - " the risk-free interest rate for nominal cash flows that do not vary based on the returns on any underlying assets
 - " the expected return on the underlying assets if the insurance contract cash flows vary with these returns.
- ! The accretion of interest on the contractual service margin uses the discount rate determined at initial recognition: the risk-free interest rate for nominal cash flows that do not vary based on the returns on any underlying assets and the expected return on the underlying assets if the insurance contract cash flows vary with these returns.¹⁰

Using the figures in the illustration, we have

- ! The accretion of interest on the contractual service margin in 20X1 is $6\% \times 22.16 = 1.33$.
- ! The contractual service margin at 20X1 before the allocation to profit or loss is $22.16 + 1.33 = 23.49$.

If the market discount rate changes from 6% at December 31, 20X0, to 7% at December 31, 20X1, we use

- ! the 7% discount rate to compute the fulfilment cash flows at December 31, 20X1.

- ! the difference between the present value of future cash flows at 7% on December 31, 20X1, and the present value of future cash flows at 6% on December 31, 20X0, to compute the insurance finance expense on the present value of the future cash flows.
- ! the 6% rate to compute the accretion of interest on the contractual service margin.

CHANGES TO THE CONTRACTUAL SERVICE MARGIN AT SUBSEQUENT MEASUREMENT

We show several scenarios that distinguish changes to the fulfilment cash flows that are offset by changes in the contractual service margin from changes to the fulfilment cash flows that are not offset.

Changes in estimated cash flows but no change in the discount rate

If the estimated nominal value of the 20X2 claim changes from 150 to 140 and the discount rate remains 6% *per annum*, both the fulfilment cash flows and the contractual service margin change:

- ! The fulfilment cash flows change from $150 / 1.06 = 141.51$ to $140 / 1.06 = 132.08$, for a decrease of $141.51 - 132.08 = 9.43$. In this scenario, the discount rate does not change, so the 1.06 denominator is the same before and after the re-estimate of the claim.
- ! The contractual service margin increases $-(140 - 150) / 1.06 = 9.43$ to offset the change in the fulfilment cash flows that is related to future services. The denominator of 1.06 is the discount rate determined at initial recognition of the insurance contracts, even if the discount rate for the fulfilment cash flows has changed since then.
- ! The insurance contract liability before the allocation of the contractual service margin to profit or loss does not change from the revised estimate of the claim. (The re-estimate of the future claim does change the amount of the contractual service margin allocated to profit or loss for 20X1.)

The insurance contract liability (on non-onerous contracts) changes from current services:

- ! It increases by the insurance finance expense on the present value of future cash flows:

$$100 \times (1.06^0 - 1.06^{-1}) + 150 \times (1.06^{-1} - 1.06^{-2}) = 13.67$$

- ! It increases by the accretion of interest on the contractual service margin: $22.16 \times 6\% = 1.33$.
- ! It decreases by the claim payment in 20X1: -100.
- ! It decreases by the allocation of the contractual service margin to profit or loss for 20X1 (explained below).

The increase in the contractual service margin of 9.43 causes an additional $\frac{1}{2} \times 9.43 = 4.72$ to be allocated to profit or loss in 20X1, so the insurance contract liability after the allocation to profit or loss declines by 4.72.

Changes in the discount rate but no changes in the estimated cash flows

If the discount rate changes to 7%, the fulfilment cash flows change from $150 / 1.06 = 141.51$ to $150 / 1.07 = 140.19$ (a decrease of $141.51 - 140.19 = 1.32$). The change in the discount rate – like the accretion of interest for the time value of money – is insurance finance income or expense. Both the accretion of interest for the time value of money and the change in the discount rate relate to current service and are not offset by changes in the contractual service margin.

The contractual service margin is the present value of the unearned profit in the insurance contracts, so it also accretes interest for the time value of money. The accretion of interest on the contractual service margin use the 6% rate determined at initial recognition, not the current 7% rate.

Changes in the estimated future cash flows and changes in the discount rate

If the estimated 20X2 claim payment changes to 140 and the discount rate changes to 7%, the fulfilment cash flows change from $150 / 1.06 = 141.51$ to $140 / 1.07 = 130.84$ (a decrease of $141.51 - 130.84 = 10.67$). The contractual service margin increases by 9.43 for the change in the estimated cost of the 20X2 claim *using the discount rate of 6% determined at initial recognition*. The change in the discount rate from 6% to 7% does not affect the contractual service margin.

- ! The change in the estimated future cash flow relates to future service, so it causes an offsetting change to the contractual service margin (if the insurance contract is not onerous and does not become onerous).
- ! The change in the current discount rate relates to current service, even though the discount rate is applied to a future claim, so the change to the fulfilment cash flows is not offset by a change in the contractual service margin.

We view the change to the fulfilment cash flows as three parts:

- ! The accretion of interest at 6% on the initial claim estimate of 150: $150 \times (1.06^{-1} - 1.06^{-2}) = 8.01$, which may also be computed as $6\% \times 150 / 1.06^2 = 8.01$
 - " not offset in the contractual service margin
- ! The change in the discount rate from 6% to 7%: $150 \times (1.07^{-1} - 1.06^{-1}) = -1.32$
 - " not offset in the contractual service margin
- ! The change in the estimated claim from 150 to 140: $(140 - 150) \times 1.07^{-1} = -9.35$
 - " offset in the contractual service margin at the 6% discount rate determined at initial recognition: $-(140 - 150) \times 1.06^{-1} = 9.43$

The two changes on December 31, 20X1 (the change in the discount rate and the change in the estimated claim) reduce the fulfilment cash flows by $-1.32 + -9.35 = -10.67$. The change in the discount rate is insurance finance expense, as is the accretion of interest for the time value of money. Insurance finance expense relates to current service, so it is not offset by an opposite change in the contractual service margin. The change in the estimate of the claim is an insurance service expense relating to future service, so it is offset by a change in the contractual service margin. The two offsetting change use different discount rates: the current discount rate for the fulfilment cash flows and the discount rate determined at initial recognition for the contractual service margin, so the offsetting is not exact.

Profit recognition as insurance services are provided

The expected profit is recognized systematically over the coverage period, which is the time the policy is in force, but does not include the claim settlement period. An N-year insurance contract has a coverage period of N years, even if some claims remain outstanding at the end of the N years and are paid later.¹¹ The systematic recognition of the contractual service margin as insurance revenue in the statement of profit or loss is based on the insurance services provided each year, which is measured as the coverage units, or the number of contracts times the quantity of the benefits.¹²

The quantity of benefits may be the amount of insurance or the cost of insurance. For life insurance contracts, the amount of insurance is the death benefit and the cost of insurance is the death benefit times the mortality rate. For general insurance, the cost of insurance is the pure premium, or the accident frequency times the average severity.

For a two-year policy with the same coverage units each year, the profit recognized in 20X1 is the contractual service margin at December 31, 20X0, plus the accretion of interest in 20X1 spread evenly over the two years:

$$(22.16 + 1.33) / 2 = 11.745$$

The contractual service margin at December 31, 20X1, after the allocation to profit or loss is

$$(22.16 + 1.33) - 11.745 = 11.745$$

For simplicity, this illustration speaks of an insurance contract. In practice, the contractual service margin is for groups of insurance contracts, and the number of coverage units refers to the group. If the illustration were for a group of two equal size policies, one with a 1-year contract period and the other with a 2-year contract period, the coverage units would be twice as great in 20X1 as in 20X2 (two policies vs one policy). The profit recognized in 20X1 would be

$$(22.16 + 1.33) \times 2 / 3 = 15.66$$

The contractual service margin at December 31, 20X1, after the allocation to profit or loss would be

$$(22.16 + 1.33) - 15.66 = 7.83$$

If the one-year policy has a benefit of 100 and the two year policy has a benefit of 200 (and the contractual service margin is 22.16 + 1.33 at December 31, 20X1), the coverage units would be 100 + 200 = 300 in 20X1 and 200 in 20X2, and the profit recognized in 20X1 would be

$$(22.16 + 1.33) \times (300 / (300 + 200)) = 14.09$$

The contractual service margin at December 31, 20X1, after the allocation to profit or loss would be

$$(22.16 + 1.33) - 14.09 = 9.40.$$

Mortality rates and claim frequencies

Coverage units may include differences in mortality rates and claim frequencies. Suppose two policyholders have life insurance contracts with 100 of death benefits each, but one policyholder has twice the mortality rate as the other policyholder.

- ! If the quantity of coverage is the death benefit, the two contracts have the same coverage units.
- ! If the quantity of coverage is the cost of insurance, the contracts with the higher mortality rate have twice the coverage units as the other contract.

Property insurance and liability insurance have policy limit, not amounts of insurance. The policy limit is not a good measure of the quantity of coverage. For example, motor insurance policy limits are generally lower for high-risk young male drivers, but pure premiums are higher because of the higher accident frequencies.

Remeasurement of the contractual service margin

After initial recognition, the contractual service margin is the unrecognized portion of the expected profit, using the following procedures:

Re-estimates of expected claims that have not yet occurred change the present value of future cash flows with offsetting changes to the contractual service margin, but the contractual service margin may not be negative. Revisions of the risk adjustment for non-financial risk for future claims affect the contractual service margin the same way as re-estimates of the expected claims. Premiums received that relate to future service, insurance acquisition cash flows that relate to future service, and premium-based taxes that relate to future service also change the contractual service margin.¹³

Decreases in the expected value of future claims decrease the fulfilment cash flows and increase the contractual service margin.

- ! If the current discount rate equals the discount rate at initial recognition of the insurance contracts, the change to the fulfilment cash flows and the contractual service margin offset each other. The insurance contract liability decreases by the greater allocation of the contractual service margin to the current year.

- ! If the current discount rate differs from the discount rate at initial recognition, the change in the expected value of the future claims is discounted at the current discount rate for the fulfilment cash flows and at the discount rate determined at initial recognition for the contractual service margin.

Illustration: An insurance contract issued on December 31, 20X1, when the current discount rate is 6% *per annum* has one claim expected to be paid for 100 on December 31, 20X3. At December 31, 20X2, the current discount rate is 5% *per annum* and the claim estimate is revised to 90. The change in the claim estimate decreases the fulfilment cash flows by $(100 - 90) / 1.05 = 9.52$ and increases the contractual service margin by $(100 - 90) / 1.06 = 9.43$.

Increases in the expected value of future claims increase the fulfilment cash flows and decrease the contractual service margin but not to less than zero. The part of the increase in the expected value of future claims remaining after the contractual service margin becomes zero is recognized immediately in profit or loss.¹⁴

If the contractual service margin is already zero (the contracts are onerous), subsequent decreases in the expected value of future claims are recognized as profit in the statement of profit or loss until the contractual service margin (without the bound at zero) becomes zero, and any remaining portion increases the contractual service margin.¹⁵ If the insurance contracts are onerous, the contractual service margin is zero, and the loss that is recognized in the statement of profit or loss is reported as the loss component of the liability for remaining coverage. If the expected value of future claims decreases, the fulfilment cash flows decrease, the loss component of the liability for remaining coverage decreases, and the change in the loss component of the liability for remaining coverage is reported as profit in the statement of profit or loss. Once the loss component of the liability for remaining coverage is reduced to zero, decreases in the estimated value of future claims increase the contractual service margin.

We summarize the re-estimation of the contractual service margin:

- ! The accretion of interest applies to the contractual service margin during the year.¹⁶ If the insurer re-estimates claims at the end of the year, the accretion of interest applies to the contractual service margin at the beginning of the year, before the re-estimates of the claims.
 - " The discount rate is the risk-free interest rate for nominal cash flows that do not vary based on the returns on any underlying assets and the expected returns on the underlying assets for cash flows based on these returns.
- ! The amount of the re-estimate of claim values is the present value of the change in the nominal value at the discount rate determined at initial recognition.¹⁷
 - " using the risk-free interest rate for nominal cash flows that do not vary based on the returns on any underlying assets
 - " using the expected return on the underlying assets for cash flows that vary based on the returns on the underlying assets
- ! Changes in current discount rates do not affect the contractual service margin.¹⁸
- ! Changes related to past and current service (incurred claims) and in the liability for incurred claims and do not affect the contractual service margin.¹⁹
- ! The allocation to profit or loss is after the re-estimate of the contractual service margin. The sequence is (i) accrete interest; (ii) re-estimate claims relating to future service; (iii) re-estimate the contractual service margin; (iv) allocate the contractual service margin to profit or loss for the year.

The effect on the contractual service margin from changes in estimates of future claims depend on whether the contracts are not onerous or onerous (or become onerous or not onerous):

- ! If the contracts are not onerous both before and after the change in the estimate, the change in the fulfilment cash flows is offset by a change in the contractual service margin, and the liability for remaining coverage does not change.

- ! If the contracts are onerous, and the change makes the contracts more onerous, the change is reported as an expense under the loss component of the liability for remaining coverage, the contractual service margin does not change, and the insurance contract liability increases.
- ! If the contracts are onerous, and the change makes the contracts less onerous, the change is reported as a contra-expense under the loss component of the liability for remaining coverage, the contractual service margin does not change, and the insurance contract liability decreases.
- ! If the contracts are not onerous, and the change makes the contracts onerous, the part of the change in the fulfilment cash flows equal to the contractual service margin is offset by reducing the contractual service margin to zero, and the rest of the change in the fulfilment cash flows is reported as an expense under the loss component of the liability for remaining coverage, and the insurance contract liability increases.
- ! If the contracts are onerous, and the change makes the contracts not onerous, the loss component of the liability for remaining coverage is reduced to zero (a contra-liability) and the rest of the change in the fulfilment cash flows (that is, the total change minus the loss component of the liability for remaining coverage) is offset by an increase in the contractual service margin, causing no change to the liability for remaining coverage excluding the loss component; the total insurance contract liability decreases by the amount of the loss component of the liability for remaining coverage.

Illustration 1: At December 31, 20X0, the liability for remaining coverage excluding the loss component is 400: the fulfilment cash flows = 300; the contractual service margin = 100; the loss component = 0.

- ! If the estimated claims increase by a present value of 25, the fulfilment cash flows become 325, the contractual service margin becomes 75, and the liability for remaining coverage does not change.
- ! If the estimated claims decrease by a present value of 25, the fulfilment cash flows become 275, the contractual service margin becomes 125, and the liability for remaining coverage does not change.
- ! If the estimated claims increase by a present value of 125, the fulfilment cash flows become 425, the contractual service margin becomes zero, and the loss component of the liability for remaining coverage becomes 25.

Illustration 2: At December 31, 20X0, the liability for remaining coverage is 400: the liability for remaining coverage excluding the loss component = 300; the loss component = 100; the contractual service margin = 0.

- ! If the estimated claims increase by a present value of 25, the fulfilment cash flows become 425, the loss component becomes 125, and the contractual service margin does not change.
- ! If the estimated claims decrease by a present value of 25, the fulfilment cash flows become 375, the loss component becomes 75, and the contractual service margin does not change.
- ! If the estimated claims decrease by a present value of 125, the fulfilment cash flows become 275, the loss component of the liability for remaining coverage becomes zero (a contra-liability or negative entry of -100), the liability for remaining coverage excluding the loss component becomes 275 (a contra-liability or negative entry of -25) and the contractual service margin becomes 25; the total insurance contract liability decreases 100

Illustrations: non-onerous and onerous contracts

The illustrations below cover both onerous and non-onerous contracts.

Illustration: An insurer writes a two-year policy on December 31, 20X0, and expects to

- ! receive on December 31, 20X0, premium of 250
- ! incur and pay two claims
 - " one on December 31, 20X1, for 100
 - " one on December 31, 20X2, for 150

The discount rate for this insurance contract is 6% *per annum*. For simplicity, the acquisition cash flows and the risk adjustment for non-financial risk are zero and the coverage units are the same in both years. On December 31, 20X1, the insurer re-estimates the December 31, 20X2, claim.

If the claim is re-estimated from 150 to 140:

- ! The change in the present value of future cash flows is $(140 - 150) / 1.06^1 = -9.43$.
- ! The accretion of interest on the contractual service margin is $22.16 \times 6\% = 1.33$.
- ! The contractual service margin increases to $22.16 + 1.33 + 9.43 = 32.92$
- ! The contractual service margin allocated to profit or loss in 20X1 is $32.92 / 2 = 16.46$

If the claim is re-estimated from 150 to 160:

- ! The change in the present value of future cash flows is $(160 - 150) / 1.06^1 = 9.43$.
- ! The contractual service margin decreases to $22.16 + 1.33 - 9.43 = 14.06$
- ! The contractual service margin allocated to profit or loss in 20X1 is $14.06 / 2 = 7.03$

If the claim is re-estimated from 150 to 190:

- ! The change in the present value of future cash flows is $(190 - 150) / 1.06^1 = 37.74$
- ! Since 37.74 is more than $22.16 + 1.33 = 23.49$, the contractual service margin declines to zero.
 - " The contractual service margin allocated to profit or loss in 20X1 is also zero.
- ! The excess of $37.74 - 23.49 = 14.25$ is recognized as a loss in the statement of profit or loss for 20X1.
 - " The loss component of the liability for remaining coverage becomes 14.25.

If the current discount rate changes from 6% to 7% on December 31, 20X1:

- ! The change in the present value of future cash flows is $150 \times (1.07^{-1} - 1.06^{-1}) = -1.32$
- ! The 20X1 accretion of interest on the contractual service margin uses the 6% discount rate.
- ! The contractual service margin does **not** increase to offset the -1.32 decrease in the present value of future cash flows.

The total insurance finance expense on the present value of future cash flows is $150 \times (1.07^{-1} - 1.06^{-2}) = 6.69$, consisting of two parts:

- ! accretion of interest at the discount rate determined at initial recognition $150 \times (1.06^{-1} - 1.06^{-2}) = 8.01$
- ! the effect of the change in the current discount rate of -1.32

The insurer has an accounting policy choice whether to recognize the entire insurance finance expense in profit or loss or to dis-aggregate the insurance finance expense and recognize the 8.01 in profit or loss and the -1.32 in other comprehensive income; see the posting on insurance finance income or expense.

If the current discount rate changes from 6% to 5% on December 31, 20X1:

- ! The change in the present value of future cash flows is $150 \times (1.05^{-1} - 1.06^{-1}) = 1.35$
- ! The 20X1 accretion of interest on the contractual service margin uses the 6% discount rate.
- ! The contractual service margin does **not** decrease to offset the 1.35 increase in the present value of future cash flows.

Changes relating to past service

The fulfilment cash flows related to past service (claims that have already occurred but not yet been paid) are the liability for incurred claims.²⁰ Changes in estimates of claims that have already occurred (but not yet been paid) are recognized in profit or loss and do not affect the contractual service margin.²¹

Illustration: An insurer writes a medical malpractice policy on December 31, 20X0. The discount rate is 6%.

- ! On December 31, 20X1, it incurs a claim estimated to be paid on December 31, 20X3, for 100.
- ! On December 31, 20X2, it revises the claim estimate to 150, still to be paid on December 31, 20X3.

The change in the estimated present value of the claim is $(150 - 100) / 1.06^1 = 47.17$. The 47.17 is recognized as a loss in the 20X2 statement of profit or loss; it is not offset by a change in the contractual service margin.²²

The contractual service margin is the unearned profit, so it relates to future services, not current services or past services.²³

- ! A change in the estimate of an incurred claim relates to past services, not future services.
- ! A claim payment that differs from the expected payment relates to current services, not future services.
- ! A change in the current (market) discount rate relates to current services, not future services.

Experience adjustments

The occurrence of a claim that differs from its expected value relates to current service, not future service, so the difference is recognized in profit or loss and not offset by a change in the contractual service margin.²⁴

Illustration: An insurer expects two death claims in 20X1 for 100 apiece, but three death claims for 100 apiece occur. The difference of $300 - 200 = 100$ is recognized in profit or loss for 20X1.²⁵

Reversals of losses on onerous contracts

Reversals of losses on onerous contracts are recognized immediately as profit in the statement of profit or loss, just as the original loss on the onerous contracts was recognized immediately as a loss in the statement of profit or loss. The reversal of losses does not affect the contractual service margin until the loss component of the liability for remaining coverage becomes zero and the contracts are no longer onerous.

Illustration: An insurer writes a two-year policy on December 31, 20X0, and expects to

- ! receive on December 31, 20X0, premium of 250
- ! incur and pay a claim on December 31, 20X2, for 300

The discount rate for this insurance contract is 6% *per annum*.

- ! The present value at initial recognition of the future cash flows is $250 / 1.06^0 - 300 / 1.06^2 = (17.00)$.
- ! The contractual service margin is zero at December 31, 20X0.
- ! A loss of -17.00 is recognized in the 20X0 statement of profit or loss.

The insurance contract liability for remaining coverage after the premium is received is $300 / 1.06^2 = 267.00$, which is reported as

- ! loss component of the liability for remaining coverage: 17.00
- ! liability for remaining coverage excluding the loss component: $267.00 - 17.00 = 250$.

The liability for remaining coverage increases to $267.00 \times 1.06 = 283.02$ at December 31, 20X1. We allocate the insurance finance expense of $267 \times 6\% = 16.02$ to the two parts of the liability for remaining coverage by their percentages, which are

- ! loss component of the liability for remaining coverage: $17.00 / (17.00 + 250.00) = 6.37\%$
- ! liability for remaining coverage excluding the loss component: $250.00 / (17.00 + 250.00) = 93.63\%$

The total insurance finance expense of $267.00 \times 6\% = 16.02$ is allocated to

- ! loss component of the liability for remaining coverage: $16.02 \times 6.37\% = 1.02$
- ! liability for remaining coverage excluding the loss component: $16.02 \times 93.63\% = 15.00$

These two parts at December 31, 20X1, are

- ! loss component of the liability for remaining coverage: $17.00 + 1.02 = 18.02$
- ! liability for remaining coverage excluding the loss component: $250.00 + 15.00 = 265.00$

We verify the values at December 31, 20X1, by the accretion of interest formula:

- ! loss component of the liability for remaining coverage: $17.00 \times 1.06 = 18.02$
- ! liability for remaining coverage excluding the loss component: $250.00 \times 1.06 = 265.00$

The effect of changes in estimates of future claims on the contractual service margin and the statement of profit or loss depends on the value in the loss component of the liability for remaining coverage.

If at December 31, 20X1, the claim is re-estimated from 300 to 290, the change in the present value of future cash flows is $(290 - 300) / 1.06^1 = -9.43$. This change is less than the loss component of 18.02, so the entire 9.43 is recognized as 20X1 profit (in profit or loss) and the loss component becomes $18.02 - 9.43 = 8.59$.

If at December 31, 20X1, the claim is re-estimated from 300 to 270, the change in the present value of future cash flows is $(270 - 300) / 1.06^1 = -28.30$. This change is more than the loss component of 18.02, so the 18.02 is recognized as 20X1 profit (in profit or loss), the loss component becomes zero, and the remainder of $28.30 - 18.02 = 10.28$ becomes the contractual service margin at December 31, 20X1 (before the allocation of the contractual service margin to profit or loss).

For 20X0 and 20X1 combined, the onerous contract which becomes non-onerous causes no profit or loss (before the allocation of the contractual service margin to profit or loss):

- ! initial recognition: debit (expense) of -17.00
- ! 20X1 insurance finance expense: debit (expense) of -1.02
- ! 20X1 reversal of loss on onerous contract: credit (contra-expense) of 18.02

The contractual service margin at December 31, 20X1, is allocated over the two-year coverage period.

- ! The allocation to 20X1 profit or loss is $10.28 / 2 = 5.14$.
- ! The allocation to 20X2 profit or loss is $5.14 \times 1.06 = 5.45$.

Foreign currencies

Insurers may sell insurance contracts in foreign countries, or they may have subsidiaries that sell insurance contracts in foreign countries.²⁶ If the insurer's subsidiary sells a contract in a foreign currency, the insurer must translate the fulfilment cash flows and the contractual service margin from the foreign currency in which the foreign insurance contracts are denominated to the insurer's functional currency (the currency of the primary economic environment in which it operates). For simplicity, we assume the presentation currency for the insurer's financial statements is the same as its functional currency.²⁷

The fulfilment cash flows are the present values of expected future cash flows, so they are monetary assets that are translated at the current exchange rate. The contractual service margin is a deferred revenue (the unearned profit in the insurance contract), which is often considered a non-monetary item, since the payment has already been collected and does not vary with exchange rates. For example, deferred revenue for a construction contract is a non-monetary item, just as the building that is constructed is a non-monetary item.

IFRS 17 says that the entire insurance contract liability, including the contractual service margin, is considered a monetary item for foreign currency translation. If the insurer (or its subsidiary) will pay a claim in a foreign currency (not the insurer's functional currency), a change in the foreign exchange rate changes the fulfilment cash flows and the contractual service margin.²⁸

Illustration: Foreign currency translation and the insurance contract liability

Parent insurer ABC, whose functional currency is the domestic currency, owns subsidiary XYZ, which sells an insurance contract on December 31, 20X0, in the foreign currency. The currency exchange rates are

- ! December 31, 20X0: Foreign currency 1.00 = functional (domestic) currency 1.20
- ! December 31, 20X1: Foreign currency 1.00 = functional (domestic) currency 1.30

XYZ sells the insurance contract in the foreign currency; ABC reports the insurance contract liability (present value of future cash flows, risk adjustment for non-financial risk, and contractual service margin) in its presentation currency, assumed to be the same as its functional (domestic) currency.

If XYZ reports fulfilment cash flows of 800 and a contractual service margin of 100 on December 31, 20X1, ABC would report them as

- ! $800 \times 1.20 = 960$ and $100 \times 1.20 = 120$ using the December 31, 20X0, exchange rates
- ! $800 \times 1.30 = 1,040$ and $100 \times 1.30 = 130$ using the December 31, 20X1, exchange rates

In 20X1, ABC shows a foreign currency translation gain of $(800 + 100) \times (1.30 - 1.20) = 90$.

CONTRACTUAL SERVICE MARGIN AND ACQUISITION CASH FLOWS

We show how acquisition cash flows affect the contractual service margin. The allocation and amortization of the acquisition cash flows are covered in other postings. This section deals with the timing of the acquisition cash flows and their capitalization as assets if they occur before the groups of insurance contracts is recognized.

An insurer writes an insurance contract on December 31, 20X0, with premium of 850 paid on that day and expected claims of 900 paid in three years. The risk adjustment for non-financial risk is zero and the discount rate is 6% *per annum*. We show

- A. The fulfilment cash flows at initial recognition.
- B. The contractual service margin at initial recognition.
- C. The fulfilment cash flows right after the premium is received.
- D. The contractual service margin right after the premium is received.

We show also how the fulfilment cash flows and the contractual service margin change if

- E. The insurer pays agents' commission equal to 5% of the gross premium and underwriters' salaries of 30 when the insurance contracts are issued.
- F. The insurer pays the estimated agents' commission and underwriters' salaries on December 20, 20X0.

Part A: The fulfilment cash flows at initial recognition =

$$\begin{aligned} & 900 / 1.06^3 = 755.66 \text{ (payments for expected claims)} \\ - & 850 \text{ (premium collection)} \\ = & 900 / 1.06^3 - 850 = -94.34 \end{aligned}$$

The fulfilment cash flows are the cash flows required to fulfill the insurance contract, so cash outflows are positive and cash inflows are negative. The insurer an accounting profit with a present value of 94.34 from the insurance contract.

The risk adjustment for non-financial risk is added to the future cash flows to derive the fulfilment cash flows at initial recognition. If the risk adjustment for non-financial risk were 40 (instead of zero), the fulfilment cash flows at initial recognition would be $-94.34 + 40 = -54.34$. For simplicity, we use a zero risk adjustment.

Part B: At initial recognition, the contractual service margin is the negative of the fulfilment cash flows (if they are negative, or a net cash inflow) or zero (if they are positive, or a net cash outflow) = 94.34 in this illustration.

Part C: Right after the premium is received, the fulfilment cash flows are the expected claims of $900 / 1.06^3 = 755.66$. The insurer expects a present value of 755.66 in future cash outflows from the insurance contract.

Some insurance cash flows occur when the contract becomes effective: premium is collected and acquisition expenses are paid. Some cash flows occur before the contract becomes effective: underwriting, actuarial, and marketing efforts are expended before policy inception. For simplicity:

- ! At initial recognition means before any cash flows related to the contract occur.
- ! Right after initial recognition means after any cash flows that occur at or before policy inception.

Insurance contracts often take effect when the premium is paid. The terms at and before initial recognition are short-hand for before and after the cash flows at (or before) inception of the contracts.

Part D: After initial recognition, the contractual service margin may change for several reasons:

- ! Expected cash flows for future coverage change.
- ! Interest is accreted on the contractual service margin.
- ! A portion of the contractual service margin is moved to profit or loss for the year.

The contractual service margin does not change from

- ! Payment or receipt of the expected cash flows.
- ! Revisions of estimates for past coverage.
- ! Differences of actual vs estimated amounts for current or past coverage.

The expected premium of 850 is collected here, so the contractual service margin does not change.

Negative fulfilment cash flow at initial recognition does not necessarily mean a fair value profit. Insurers have fixed expenses besides the directly attributable acquisition cash flows that are included in the fulfilment cash flows. Some fixed costs for administrative expenses and employee training costs are not included in the fulfilment cash flows but are charged to expense when they occur, unless the costs are allocated to a portfolio of insurance contracts.²⁹ An insurer with fixed costs that are charged to expense when they occur may have negative fulfilment cash flows at initial recognition even if the insurance contracts are not profitable. In addition, the risk adjustment for non-financial risk, if not computed by the cost of capital method, might not cover the cost of holding capital.

Part E: The fulfilment cash flows at initial recognition =

$$\begin{aligned} & 900 / 1.06^3 = 755.66 \text{ (payments for expected claims)} \\ - & 850 \text{ (premium collection)} \\ + & 850 \times 5\% \text{ (agents' commission)} \\ + & 30 \text{ (underwriters' salaries)} \\ = & 900 / 1.06^3 - 850 + 850 \times 5\% + 30 = -21.84 \end{aligned}$$

After the premium is received and the agents' commission and underwriters' salaries are paid, the fulfilment cash flows = 755.66 (as in *Part B* above).

The contractual service margin is 21.84 both at initial recognition and right after the agents' commission and underwriters' salaries are paid.

Part F: The fulfilment cash flows at initial recognition are the future cash flows that are directly attributable to the portfolio of insurance contracts. Many acquisition expenses are paid before the insurance contract is recognized, so they are not future cash flows. For example, insurers pay underwriters to review insurance applications before the policy is issued.

Acquisition cash flows paid before initial recognition are capitalized as an asset, not charged to expense. At initial recognition, this asset is de-recognized and the acquisition cash flows already paid are included in the fulfilment cash flows. Even if the agents' commission and underwriters' salaries are paid on December 20, they are part of the fulfilment cash flows at initial recognition.³⁰

In this scenario, the acquisition cash flows of $850 \times 5\% + 30 = 72.50$ are capitalized as an asset on December 20, 20X0. They are not included in the fulfilment cash flows because the insurance contracts is not recognized until December 31, 20X0, but they are not charged to expense in 20X0. On December 31, 20X0, the pre-paid acquisition costs asset is de-recognized (eliminated) and the 72.50 is moved to the fulfilment cash flows. Once the insurance contracts are recognized, the acquisition cash flows paid at or before initial recognition leave the fulfilment cash flows.

The timing of the acquisition cash flows does not affect when acquisition expenses are reported as insurance revenue and insurance service expense. See the chapter on acquisition cash flows for the amortization of acquisition cash flows and their allocation to the years of the coverage period, and the chapter on income and expense for the reporting of acquisition expenses as insurance revenue and insurance service expense.

FULFILMENT CASH FLOWS AND RISK ADJUSTMENT FOR NON-FINANCIAL RISK

The risk adjustment for non-financial risk is included in the fulfilment cash flows. Methods of computing the risk adjustment for non-financial risk, such as the confidence level method and the cost of capital method, are covered in the posting on the risk adjustment for non-financial risk. This section deals with the valuation of the risk adjustment for non-financial risk in nominal values vs present values.

An insurer writes an insurance contract on December 31, 20X0, with premium of 850 paid on that day and expected claims of 900 paid in three years. The insurer

- ! pays agents' commission equal to 5% of the gross premium and underwriters' salaries of 30.
- ! holds a risk adjustment for non-financial risk of 20 for the expected claims to be paid three years hence.

The discount rate is 6% *per annum*. We compute the fulfilment cash flows at initial recognition.

IFRS 17 has two methods of reporting the risk adjustment for non-financial risk.

Method #1: The risk adjustment of 20 is not a cash flow. It is posted as a liability on the statement of financial position at initial recognition and it is released when the claim is paid, but no cash transaction occurs. It is included in the fulfilment cash flows at its nominal value; it is not discounted to a present value. The fulfilment cash flows at initial recognition are

- 900 / 1.06³ = 755.66 (payments for expected claims)
- 850 (premium collection)
- + 850 × 5% (agents' commission)
- + 30 (underwriters' salaries)

$$+ 20 \text{ (risk adjustment for non-financial risk)}$$

$$= 900 / 1.06^3 - 850 + 850 \times 5\% + 30 + 20 = -1.84.$$

Method #2: If the risk adjustment for non-financial risk is derived by the cost of capital method, it is a cash flow paid to tax authorities and investors to “borrow” capital. To simplify the mathematics, we assume the cash is paid when the claims are paid. In practice, the cash is paid over the years, and the cost of capital method produces a risk adjustment for non-financial risk that declines from initial recognition until the claim is paid.

If the risk adjustment is paid when the claims are paid, the insurer needs $20/1.06^3 = 16.79$ at initial recognition, just as it needs $900 / 1.06^3 = 755.66$ to pay the expected claims. The fulfilment cash flows at initial recognition = $900 / 1.06^3 - 850 + 850 \times 5\% + 30 + 20 / 1.06^3 = -5.05$, and the contractual service margin = 5.05.

The insurance finance expenses depend on whether the risk adjustment for non-financial risk is a nominal value or a present value.³¹

- ! If the risk adjustment for non-financial risk is held at nominal value, the insurance finance expense applies to the present value of the future claim payments.
- ! If the risk adjustment for non-financial risk is held at present value, the insurance finance expense applies to both the present value of the future claim payments and the present value of the risk adjustment.

CONTRACTUAL SERVICE MARGIN ILLUSTRATION

An insurance contract written on December 31, 20X0, has a premium of 880 received on that day. Claims are expected to occur and be paid for 300 each on 12/31/20X1, 12/31/20X2, and 12/31/20X3. The discount rate is 6% *per annum*. For simplicity, this exercise has no risk adjustment for non-financial risk and the coverage units are assumed to be same each year. Actual claim payments equal expected payments. We show

- A. The fulfilment cash flows at initial recognition.
- B. The contractual service margin at initial recognition.
- C. The fulfilment cash flows right after the premium is received.
- D. The contractual service margin right after the premium is received.
- E. The insurance contract liability right after the premium is received.
- F. The fulfilment cash flows right before the claim payment on December 31, 20X1.
- G. The insurance contract liability right before the claim payment on December 31, 20X1.
- H. The insurance profit or loss for 20X1.
- I. The fulfilment cash flows right after the claim payment on December 31, 20X1.
- J. The contractual service margin right after the allocation to profit or loss on December 31, 20X1.
- K. The insurance contract liability right after the allocation to profit or loss on December 31, 20X1.
- L. The fulfilment cash flows right before the claim payment on December 31, 20X2.
- M. The contractual service margin right after the allocation to profit or loss on December 31, 20X1.
- N. The insurance profit or loss for 20X2.
- O. The contractual service margin right after the allocation to profit or loss on December 31, 20X2.
- P. The fulfilment cash flows right after the claim payment on December 31, 20X2.
- Q. The insurance contract liability right after the allocation to profit or loss on December 31, 20X2.

Part A: The fulfilment cash flows at initial recognition =

$$300 / 1.06^1 + 300 / 1.06^2 + 300 / 1.06^3 - 880 = -78.10.$$

Part B: The contractual service margin at initial recognition = the negative of the fulfilment cash flows at initial recognition (but not less than zero) = 78.10.

Part C: The fulfilment cash flows right after the premium is received =

$$300 / 1.06^1 + 300 / 1.06^2 + 300 / 1.06^3 = 801.90$$

Part D: The contractual service margin right after the premium is received remains 78.10.

Part E: The insurance contract liability right after the premium is received = the fulfilment cash flows + the contractual service margin = $801.90 + 78.10 = 880.00$.

The contractual service margin eliminates profits before the insurer provides services. Profits are measured two ways:

- ! the change in assets minus the change in liabilities on the statement of financial position
- ! revenue minus expenses on the statement of financial performance (statement of profit or loss)

The statement of financial position shows

- ! cash (an asset) increases 880
- ! the insurance contract liability increases 880

The change in net assets is zero, so the profit at initial recognition is zero.

The statement of profit or loss shows no revenue or expense at initial recognition. Insurance revenue and insurance service expense are recognized as insurance services are provided.

Part F: The fulfilment cash flows right before the claim payment on December 31, 20X1, are

$$300 / 1.06^0 + 300 / 1.06^1 + 300 / 1.06^2 = 850.02.$$

We derive the same value by the accretion of interest on the fulfilment cash flows right after the premium is received, since the discount rate does not change:

$$1.06 \times (300 / 1.06^1 + 300 / 1.06^2 + 300 / 1.06^3) = 1.06 \times 801.90 = 850.02.$$

Part G: The insurance contract liability before the claim payment on December 31, 20X1, is the contractual service margin at initial recognition accreted for interest = $78.10 \times 1.06 = 82.78$.

Allocation to profit or loss

Part H: The insurance profit or loss for 20X1 has two parts:

- ! insurance revenue and insurance service expense
- ! insurance finance revenue or expense

The coverage units are the same each year, so the 82.78 contractual service margin at December 31, 20X1, is allocated evenly to 20X1, 20X2, and 20X3. The insurance revenue for 20X1 is

$$82.78 / 3 = 27.59.$$

In practice, the coverage units depend on terminations, lapses, and deaths; the addition of new contracts to the group; and contractual provisions that increase or decrease coverage.

Illustration: A group comprises the whole life insurance policies issued in 20X1. If the contracts are issued evenly through the year, the coverage units in 20X1 = $\frac{1}{2}$ year \times the number of contracts issued. The coverage units in 20X2 = 1 year \times (the number of contracts issued – terminations and deaths in 20X1). The coverage units depend also on the dates of the terminations and deaths, but the formula above is a rough estimate.

If 100 insurance contracts are issued on January 1, 20X1, and the deaths on December 31, 20X1, 20X2, and 20X3 are 4, 6, and 8, the coverage units are 100 for 20X1, $100 - 4 = 96$ for 20X2, and $100 - 4 - 6 = 90$ for 20X3.

- ! The percentage of the December 31, 20X1, contractual service margin allocated to profit or loss for 20X1 is $100 / (100 + 96 + 90) = 34.97\%$.
- ! The percentage of the December 31, 20X2, contractual service margin allocated to profit or loss for 20X2 is $96 / (96 + 90) = 51.61\%$.

The accretion of interest is an insurance finance expense.

- ! The insurance finance expense on the future cash flows = $6\% \times 801.90 = 48.11$.
- ! The accretion of interest on the contractual service margin = $6\% \times 78.10 = 4.69$
- ! The total insurance finance expense = $48.11 + 4.69 = 52.80$.

The risk adjustment for non-financial risk is zero, so the present value of the future cash flows equals the fulfilment cash flows. (The risk adjustment for non-financial risk is part of the fulfilment cash flows but not part of the present value of the future cash flows.)

The contractual service margin is positive, indicating that the insurance contract is expected to generate an accounting profit; it is not onerous. The insurance finance expense of 52.80 is more than the insurance revenue of 27.59, but this does not imply that the insurance contract loses money. IFRS 17 measures the insurance finance expense on the insurance cash flows and the contractual service margin, not the offsetting investment income on assets bought with the premium. The investment yield is usually at least equal to the discount rate, especially if the assets are bonds of similar maturity and liquidity as the insurance claims.

The insurance service result is the insurance revenue minus the insurance service expenses. It comprises the allocation of the contractual service margin to profit or loss for the year + the release of the risk adjustment for non-financial risk \pm the insurance service expense for current service and for past service \pm the effects of insurance contracts become more or less onerous during the year.

- ! If the insurance contracts are not onerous (the contractual service margin is positive at initial recognition), the risk adjustment for non-financial risk is zero, and the actual claims equal the expected claims, the allocation of the contractual service margin to profit or loss shows the insurance service result, or the insurance profit during the year.
- ! If the insurance contracts are onerous and the contractual service margin is zero, the loss component of the liability for remaining coverage at initial recognition is the insurance service result at initial recognition, or the loss at initial recognition.

Other illustrations show how to compute insurance revenue, insurance service expense, and the insurance service result. The relative sizes of the insurance finance expense and the insurance service result do not relate to the profitability of the insurance contracts.

Part I: Cash outflows reduce the fulfilment cash flows. The fulfilment cash flows right after the claim payment on December 31, 20X1, is the fulfilment cash flows right before the claim payment minus the claim payment = $850.02 - 300 = 550.02$.

Part J: The contractual service margin right after the allocation to profit or loss on December 31, 20X1, is the contractual service margin at initial recognition + the accretion of interest in 20X1 – the present value of net increases in the future cash flows – the allocation to profit or loss for 20X1 = $78.10 + 4.69 - 27.59 = 55.19$. (This illustration has no change in the future cash flows for unpaid claims.)

Part K: The insurance contract liability right after the allocation to profit or loss on December 31, 20X1, is the fulfilment cash flows + the contractual service margin = $550.02 + 55.19 = 605.21$.

This illustration has no risk adjustment for non-financial risk, no changes in the estimates of future cash flows, no changes in the discount rate, and actual claims equal to expected claims. Other illustrations show more complete scenarios.

Part L: The fulfilment cash flows right before the claim payment on December 31, 20X2, are

$$300 / 1.06^0 + 300 / 1.06^1 = 583.02$$

The discount rates does not change in this illustration, so we derive the same value by the accretion of interest on the fulfilment cash flows right after the claim payment on December 31, 20X2: $1.06 \times 550.02 = 583.02$.

Part M: The contractual service margin right before the claim payment on December 31, 20X2, is the contractual service margin right after the allocation to profit or loss on December 31, 20X1, + the accretion of interest in 20X2 = $55.19 \times 1.06 = 58.50$

Part N: The insurance profit or loss for 20X2 is the allocation of the contractual service margin to 20X2. The coverage units are the same in 20X2 and 20X3, so half the contractual service margin is allocated to profit or loss for 20X2: $58.50 / 2 = 29.25$.

Part O: The contractual service margin right after the allocation to profit or loss on December 31, 20X2, is $58.50 - 29.25 = 29.25$.

Part P: The fulfilment cash flows right after the claim payment on December 31, 20X2, are

$$583.03 - 300 = 283.02$$

Part Q: The insurance contract liability right after the allocation to profit or loss on December 31, 20X2, is

$$283.02 + 29.25 = 312.27$$

End-notes:

¹ See IFRS 17 paragraph 38: "The contractual service margin ... represents the unearned profit the entity will recognise as it provides services in the future."

² See IFRS 17 paragraph 43: "The contractual service margin ... represents the profit in the group of insurance contracts that has not yet been recognised in profit or loss because it relates to the future service to be provided." See also IFRS 17 *Basis for Conclusions* paragraph BC18(b).

³ Negative fulfilment cash flows at initial recognition means the present value of premium inflows is more than the present value of claims and other cash outflows (such as acquisition cash flows and claim adjusting expenses) plus the risk adjustment for non-financial risk.

⁴ See IFRS 17 paragraph 38: "... the contractual service margin on initial recognition ... is an amount that ... results in no income or expenses arising from the initial recognition of ... the fulfilment cash flows ..." See also IFRS 17 *Basis for Conclusions* paragraph BC21: "On initial recognition, the contractual service margin is an amount that reflects the excess of the consideration charged for a group of insurance contracts over the risk-adjusted expected present value of the cash outflows expected to fulfil the group of contracts and any insurance acquisition cash flows incurred before the recognition of the group of contracts. It depicts the profit that the entity expects to earn by providing the services promised under the contracts in the group over the duration of the coverage of the group. ... IFRS 17 does not permit the entity to recognise that excess as a gain on initial recognition, but instead requires the entity to recognise that gain as the entity satisfies its obligation to provide services over the coverage period."

⁵ See IFRS 17 paragraph 47: “An insurance contract is onerous at the date of initial recognition if the fulfilment cash flows ... in total are a net outflow. ... An entity shall recognise a loss in profit or loss for the net outflow for the group of onerous contracts, resulting in the carrying amount of the liability [that is, the insurance contract liability] for the group being equal to the fulfilment cash flows and the contractual service margin of the group being zero.” See also 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 ... [and] no contractual service margin would be recognised.”

⁶ See IFRS 17 paragraph 38: “The contractual service margin ... represents the unearned profit the entity will recognise as it provides services in the future. An entity shall measure the contractual service margin on initial recognition ... at an amount that ... results in no income or expenses arising from:

- (a) the initial recognition of an amount for the fulfilment cash flows ...
- (b) the derecognition at the date of initial recognition of any asset or liability recognised for insurance acquisition cash flows ...
- (c) any cash flows arising from the contracts in the group at that date.”

- ! Item (a) is the present value of the net cash flows after the insurance contracts are recognized.
- ! Item (b) is the present value of the net cash flows before the insurance contracts are recognized.
- ! Item (c) is the present value of the net cash flows when the insurance contracts are recognized.

Other paragraphs in IFRS 17, the IFRS 17 *Basis for Conclusions*, and the IFRS 17 *Illustrative Examples* view initial recognition as right before the cash flows at inception of the insurance contracts.

⁷ See IFRS 17 paragraph IN6(d)(ii): “an amount representing the unearned profit in the group of contracts (the contractual service margin),” and IFRS 17 paragraph 38: “The contractual service margin ... represents the unearned profit the entity will recognise as it provides services in the future.”

⁸ See IFRS 17 paragraph B119.

⁹ The acquisition cash flows are included in the fulfilment cash flows, but they are amortized and allocated over the coverage period for insurance revenue and insurance service expenses; see the posting on acquisition cash flows. The risk adjustment for non-financial risk may or may not accrete interest, depending on how it is estimated; see the posting on the risk adjustment for non-financial risk.

¹⁰ See IFRS 17 paragraph B72(b): “to determine the interest to accrete on the contractual service margin ... discount rates determined at the date of initial recognition ... [for] nominal cash flows that do not vary based on the returns on any underlying items.” See also IFRS 17 paragraph B72(c): “to measure the changes to the contractual service margin ... discount rates ... determined on initial recognition.” Paragraph B72(c) refers to changes in the contractual service margin stemming from changes in the estimated value of future claims; see the illustrations further below in this chapter.

¹¹ Life insurance death benefits are paid soon after the death occurs. Liability insurance claims may remain unpaid after the claim occurs, but the contractual service margin is held only while the contract is in force, not until the claims are paid.

¹² See IFRS 17 paragraph B119: “An amount of the contractual service margin ... is recognised in profit or loss in each period to reflect the services provided ... in that period ... The amount is determined by:

(a) identifying the coverage units in the group. The number of coverage units in a group is the quantity of coverage provided by the contracts in the group, determined by considering for each contract the quantity of the benefits provided under a contract and its expected coverage duration.

(b) allocating the contractual service margin at the end of the period (before recognising any amounts in profit

or loss to reflect the services provided in the period) equally to each coverage unit provided in the current period and expected to be provided in the future.

(c) recognising in profit or loss the amount allocated to coverage units provided in the period.”

See also IFRS 17 *Basis for Conclusions* paragraph BC279: “the contractual service margin for a group of insurance contracts remaining (before any allocation) at the end of the reporting period is allocated over the coverage provided in the current period and expected remaining future coverage, on the basis of coverage units, reflecting the expected duration and quantity of benefits provided...”

The examples in the IFRS 17 *Illustrative Examples* and the IFRS 17 *Effects Analysis* assume equal costs for each death benefit and compute the quantity of benefits as the number of insured lives. If mortality rates or the amount of insurance differs by contract, the insurer may use the cost of the benefits as the quantity.

¹³ See IFRS 17 paragraph B96: “... the contractual service margin ... [is adjusted] for changes in fulfilment cash flows that relate to future service. These changes comprise:

(a) experience adjustments arising from premiums received in the period that relate to future service, and related cash flows such as insurance acquisition cash flows and premium-based taxes ...

(b) changes in estimates of the present value of the future cash flows in the liability for remaining coverage

...

(d) changes in the risk adjustment for non-financial risk that relate to future service.”

¹⁴ See IFRS 17 paragraph 44(c)(i): “... the contractual service margin ... at the end of the reporting period equals the carrying amount at the start of the reporting period adjusted for ... the changes in fulfilment cash flows relating to future service ... except to the extent that such increases in the fulfilment cash flows exceed the carrying amount of the contractual service margin, giving rise to a loss.”

¹⁵ See IFRS 17 paragraph 44(c)(ii): “... the contractual service margin ... at the end of the reporting period equals the carrying amount at the start of the reporting period adjusted for ... the changes in fulfilment cash flows relating to future service ... except to the extent that ... such decreases in the fulfilment cash flows are allocated to the loss component of the liability for remaining coverage.”

¹⁶ See IFRS 17 paragraph 44(b): “interest accreted on the carrying amount of the contractual service margin during the reporting period.”

¹⁷ See IFRS 17 paragraph B72(c).

¹⁸ See IFRS 17 paragraph B97 (slightly reworded for clarity): “An entity shall not adjust the contractual service margin ... for the effect of the time value of money and changes in the time value of money and the ... effect of a change in discount rate ... because they do not relate to future service.” See also IFRS 17 *Basis for Conclusions*, paragraph BC24(c): “changes in estimates arising from ... changes in discount rates are recognised ... in the period in which the change occurs” [that is, they are not offset by changes in the contractual service margin].

¹⁹ See IFRS 17 paragraph B97: “An entity shall not adjust the contractual service margin for ... changes in estimates of fulfilment cash flows in the liability for incurred claims; and experience adjustments [that is, differences between incurred claims and expenses that were expected to happen in the period and the actual amounts incurred]...”

²⁰ See IFRS 17 paragraph 40(b): “... the liability for incurred claims, comprising the fulfilment cash flows related to past service...”

²¹ For claims that occur during the year, the contractual service margin is adjusted if the estimate of the claim is changed before the claim occurs but not if the estimate is changed when the claim occurs or after the claim occurs. See IFRS 17 *Basis for Conclusions* paragraph BC60: "... complexity arises from the distinction between changes in estimates relating to future service and changes relating to past service. That distinction may be subjective and may vary according to when the entity makes the change in estimate. An entity adjusts the contractual service margin for a change in estimates of cash flows that is made before the cash flows occur. In contrast, the entity recognises an experience adjustment in profit or loss and does not adjust the contractual service margin if there is no change in estimate before the cash flows occur."

²² Medical malpractice policies are normally annual insurance contracts, so the coverage period for the group of contracts would have ended by December 31, 20X2, and the contractual service margin would be zero. But the difference between past and future service regarding the effect on the contractual service margin applies even if the coverage period has not ended.

²³ See IFRS 17 paragraph 43: "The contractual service margin ... represents the profit ... that has not yet been recognised in profit or loss because it relates to the future service to be provided ..."

²⁴ See IFRS 17 *Basis for Conclusions* paragraph BC233: "... experience adjustments [are] ... differences between incurred claims and expenses that were expected to happen in the period and the actual amounts incurred ... experience adjustments relate to current or past service."

²⁵ The insurer may revise its expected death claims for 20X2 and later years based on the experience in 20X1, and this revision would be offset by changes in the contractual service margin.

²⁶ On selling insurance contracts in foreign countries, see *AIG (2012)*.

²⁷ On foreign currency translation under IFRS, see IAS 21: the effects of changes in foreign exchange rates (2003). On foreign currencies, functional currencies, and presentation currencies, see *Robinson (2015)*.

²⁸ See IFRS 17 paragraph 30: "When applying IAS 21 [which covers the accounting for changes in foreign exchange rates] to a group of insurance contracts that generate cash flows in a foreign currency, an entity shall treat the group of contracts, including the contractual service margin, as a monetary item." IFRS 17 paragraph 90 adds that the insurer "includes exchange differences on changes in the carrying amount of groups of insurance contracts in the statement of profit or loss, unless they relate to changes in the carrying amount of groups of insurance contracts included in other comprehensive income ..., in which case they shall be included in other comprehensive income." IFRS 17 *Basis for Conclusions* paragraph BC277 explains: "When applying IAS 21 The Effects of Changes in Foreign Exchange Rates, the fulfilment cash flows are clearly monetary items. However, the contractual service margin component might be classified as non-monetary because it is similar to prepayments for goods and services. The Board decided that it would be simpler to treat all components of the measurement of an insurance contract denominated in a single currency as either monetary or non-monetary. Because the measurement in IFRS 17 is largely based on estimates of future cash flows, the Board concluded that it is more appropriate to view an insurance contract as a whole as a monetary item." IFRS 17 *Basis for Conclusions* paragraph BC278 adds: "IFRS 17 requires an insurance contract to be treated as a monetary item for foreign currency translation in applying IAS 21. This applies for both the fulfilment cash flows and the contractual service margin. The Board's conclusion that the insurance contract is a monetary item does not change if an entity measures a group of insurance contracts using the simplified approach for the measurement of the liability for remaining coverage." The changes in the insurance contract liability from foreign currency translation are reported as profit or loss, unless they relate to parts of the insurance contract liability that are reported in other comprehensive income. Changes in the contractual service margin are reported in profit or loss. Changes in the fulfilment cash flows caused by changes in current interest rates might be reported in other comprehensive income.

²⁹ See IFRS 17 paragraph B65(L): “Cash flows within the boundary of an insurance contract are those that relate directly to the fulfilment of the contract [and] ... include ... an allocation of fixed and variable overheads (such as the costs of accounting, human resources, information technology and support, building depreciation, rent, and maintenance and utilities) directly attributable to fulfilling insurance contracts.”

³⁰ See IFRS 17 paragraph 27: “An entity shall recognise an asset or liability for any insurance acquisition cash flows relating to a group of issued insurance contracts that the entity pays or receives before the group is recognised, unless it chooses to recognise them as expenses or income ... An entity shall derecognise the asset or liability resulting from such insurance acquisition cash flows when the group of insurance contracts to which the cash flows are allocated is recognised ...”

³¹ See IFRS 17 paragraph 81: “An entity is not required to disaggregate the change in the risk adjustment for non-financial risk between the insurance service result and insurance finance income or expenses. If an entity does not make such a disaggregation, it shall include the entire change in the risk adjustment for non-financial risk as part of the insurance service result.” The IFRS 17 paragraph means that if the insurer holds the present value of the risk adjustment for non-financial risk in the insurance contract liability, then it disaggregates the change in the risk adjustment for non-financial risk between the insurance service result and insurance finance income or expenses; if it holds the nominal value of the risk adjustment for non-financial risk in the insurance contract liability, then it does not disaggregate the change in the risk adjustment for non-financial risk between the insurance service result and insurance finance expenses.