IFRS 17 Insurance Contracts

06 December 2019
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IFRS 17 Insurance Contracts

Module 1: Background and Introduction to IFRS 17

Module 2: Definition and Scope of insurance contracts

Module 3: Separation or Unbundling

Module 4: Recognition, Modification and Derecognition of insurance contracts

Module 5: Level of Aggregation

Module 6: General Measurement Model - Building Block Approach
- Block 1: Future cash flows
- Block 2: Time value of money
- Block 3: Risk adjustment
- Block 4: Contractual service margin

Module 7: Simplified Measurement Model: Premium Allocation Approach

Module 8: Modified Measurement Model: Variable Fee Approach

Module 9: Reinsurance

Module 10: Presentation and Disclosures

Module 11: Transitional Approach

Module 7 to Module 11 will be shared on the 2nd Session
Module 1:
Background and Overview of IFRS 17
After 20 years in the making, IASB issued IFRS 17 in May 2017...

One accounting model for all insurance contracts in all IFRS jurisdictions

1 January 2022
Mandatory effective date of the new standard

Improved
Comparability among industries

More
useful and transparent information on the value of insurance obligations

Better
information about profitability
This accounting standard that have considered 600 comment letters and went through 900 meetings, roundtables and discussion forums, introduces new revolutionary requirements...

Components of IFRS 17

<table>
<thead>
<tr>
<th>Define accounting policy</th>
<th>Measurement &amp; actuarial model</th>
<th>Presentation &amp; Disclosure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definition &amp; Scope</td>
<td>Measurement model</td>
<td>Transition</td>
</tr>
<tr>
<td>Separation</td>
<td>Expected cashflow</td>
<td>Disclosure</td>
</tr>
<tr>
<td>Recognition</td>
<td>Attributable expenses</td>
<td>IFRS 9/ IFRS 17 interaction</td>
</tr>
<tr>
<td>Level of aggregation</td>
<td>Discount rate</td>
<td>Presentation</td>
</tr>
</tbody>
</table>

Measurement & actuarial model
- Measurement
- Onerous contract
- Initial & Subsequent Measurement
- Reinsurance
- Contractual Service Margin (“CSM”)

Presentation & Disclosure
- Transition
- Disclosure
- IFRS 9/ IFRS 17 interaction
- Presentation
... that is expected to have a profound impact to the company

**Level of aggregation**

<table>
<thead>
<tr>
<th>Underwriting Yr 1</th>
<th>Underwriting Yr 2</th>
<th>Underwriting Yr 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Similar risk managed together</td>
<td>Similar risk managed together</td>
<td>Similar risk managed together</td>
</tr>
<tr>
<td>Onerous</td>
<td>No significant possibility of becoming Onerous</td>
<td>Other</td>
</tr>
</tbody>
</table>

**Measurement model**

- **Contractual Service Margin**
- **Risk adjustment**
- **Time value of money**
- **Expected future cashflows**

**Presentation**

<table>
<thead>
<tr>
<th>IFRS 17 Presentation</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Insurance revenue</td>
<td>XX</td>
</tr>
<tr>
<td>Insurance service expenses</td>
<td>XX</td>
</tr>
<tr>
<td><strong>Insurance service results</strong></td>
<td>XX</td>
</tr>
<tr>
<td>Investment income</td>
<td>XX</td>
</tr>
<tr>
<td>Insurance finance income or expense</td>
<td>XX</td>
</tr>
<tr>
<td><strong>Finance results</strong></td>
<td>XX</td>
</tr>
<tr>
<td>Profit or Loss</td>
<td>XX</td>
</tr>
<tr>
<td>Other comprehensive income - insurance finance income or expense</td>
<td>XX</td>
</tr>
<tr>
<td>Total comprehensive income</td>
<td>XX</td>
</tr>
</tbody>
</table>

**Data**

- New data requirements at more detailed granularity

**System & Process**

- New/ enhanced actuarial model
- New Chart of Account & financial reporting process
- Changes to core insurance, actuarial and reporting systems

**Performance**

- **Change in profit emergence pattern**
- Earlier recognition of loss – Onerous contracts are recognised in P&L immediately
- Impact to contract liability from risk adjustment and time value of money
- Separate information on underwriting and investment performance

**Business Strategy and Operations**

- Product pricing and portfolio mix
- Reinsurance strategy
- Key Performance Indicator
- Asset Liability Management

**Interaction with tax and capital/solvency requirements**

New measurement model and presentation and disclosure may have implication to tax as well as capital and solvency requirements
... and therefore smart implementation and transition are critical.

**Consider interaction with other framework**
- Solvency framework
- Tax regulations

**Avoid accounting mismatch**
- Careful consideration of accounting policy choices

**Smart First Time Adoption:**
- Level of aggregation
- Transition options
- Risk adjustment

**2022** Effective date

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...so as proper planning for the implementation

Key activities

Understanding the requirements, and setting new accounting policies

Identifying the gaps:
- Data
- System capabilities
- Processes

Financial impact analysis. Understanding impact of accounting policy options and assumptions used.

Design “Target Operating Model”

Build & Implementation:
- Source system – Core insurance
- Actuarial system
- Reporting system & subledger

Post implementation

Consideration

- Project governance
- Cost
- Resources, and required skills and talents
- Change management
- Stakeholder engagement
- Other operational complexities

“Time is of the essense. Effective date 1 Jan 2022 means entities are left with 1 year for implementation, assuming year 2021 is parallel run for comparative numbers”

1 Jan 2021
Start of comparative period

1 Jan 2022
IFRS 17 effective

31 Dec 2022
Financial year end with IFRS 17
... it is also equally important that companies extract the most benefit from the investment being put in place for the implementation of IFRS 17

“\textit{A successful IFRS17 implementation will go beyond mere compliance and unlock value for the people, Finance and the broader firm}”
Module 2:
Definition and Scope of Insurance Contract
2 Definition and Scope

**Insurance contract definition**

“A contract under which one party (the **issuer**) accepts **significant insurance risk** from another party (the **policyholder**) by agreeing to compensate the policyholder if a specified uncertain future event (the **insured event**) adversely affects the policyholder.”

**Contract definition**

- An agreement between two or more parties that creates enforceable rights and obligations
- Enforceability is a matter of law
- Contracts can be written, oral or implied by the entity’s customary business practices.

**Significant Insurance Risk**

Insurance risk is significant if and only if there is a scenario that has **commercial substance**, in which, on **present value basis** there is a possibility that an issuer could:

- Suffer a loss caused by the insured event; and
- Pay significant additional amount beyond what would be paid if the insured event had not occurred.

The definition of insurance contract applies to the “contract” and not the entity

**Significant insurance risk definition is similar to IFRS 4**
Definition and Scope

**Scoped IN of IFRS 17**

- Insurance contract that entity issued (entity accepts significant insurance risk)
- Reinsurance contract entity issued
- Reinsurance contract entity hold
- Investment contracts with a discretionary participation
- Features, provided the entity also issues insurance contracts

**Scoped OUT IFRS 17**

- Warranties issued by manufacturers
- Retirement benefit obligations
- Credit cards that provide insurance coverage for which the entity does not reflect the individual customer’s insurance risk in setting the price of the contract with that customer
- Insurance contracts held by an entity, unless those contracts are reinsurance contracts

**Options available**

These contracts can be scoped in IFRS 17 or other IFRS:
- Financial Guarantee (IFRS 9 or IFRS 17)
- **Specified fixed-fee** service contracts (IFRS 15 or IFRS 17)

- Scope of IFRS 17 is largely similar to IFRS 4
Module 3: Separation or Unbundling
An insurance contract may contain one or more components that would be within the scope of another standard if they were separate contracts. Unbundling applies only if it is required.

1. Not closely related
   - Not closely related to the host contract
   - Separate financial instrument with the same terms would meet the derivative definition according to IFRS 9

2. Distinct
   - Can value 1 component without the other
   - Can benefit from 1 component without the other
   - Component separately sold in same market & jurisdiction

- Under IFRS 17, voluntary unbundling of non-insurance component is no longer permitted unless the insurer can demonstrate it is necessary to do so.
Separation and Unbundling

Similarities and differences between investment and service components requirements in IFRS 17

Investment:
  a) Is separate measurement impossible? OR
  b) Is the policyholder unable to benefit from service without the other component?

  No  Yes

  Investment: Are there similar products sold?

  No  Yes

Service:
  a) Are cash flows and risks highly interrelated? AND
  b) Is there a significant service of integrating the components?

  No  Yes

  Service: Are there similar products sold? OR
  b) Is the policyholder able to benefit from service separately?

  Yes  No

Unbundling required
Example 1: Separating components from a life insurance contract with an account balance

- An entity issues a life insurance contract with an account balance.
- The entity receives a premium of RM1,000 when the contract is issued.
- The account balance is increased annually by voluntary amounts paid by the policyholder, increased or decreased by amounts calculated using the returns from specified assets and decreased by fees charged by the entity.

The contract promises to pay the following:

(a) a death benefit of RM5,000 plus the amount of the account balance, if the insured person dies during the coverage period; or
(b) the account balance, if the contract is cancelled (i.e. there are no surrender charges).

The entity has a claims processing department to process the claims received and an asset management department to manage investments.

An investment product that has equivalent terms to the account balance, but without the insurance coverage, is sold by another financial institution.
Example 1: Separating components from a life insurance contract with an account balance (cont’d)

Is the account balance distinct?

• The existence of similar investment products indicates that the components may be distinct.

• Death benefits either lapse or mature at the same time as the account balance, so the components are highly interrelated and are not distinct.

• Consequently, the account balance would not be separated.

Are the claims processing and asset management service distinct?

• Claims processing and asset management activities are activities the entity must undertake to fulfil the contract so they are not distinct because the policyholder cannot benefit either on their own or together with other resources readily available.

• Thus, do not separate the claims processing or asset management service components from the insurance contract.
There might be circumstances where one legal contract does not reflect the economic substance. But, combining multiple risk/coverage in a single contract is not sufficient (in itself) to conclude that the economic substance is not reflected in the “single contract form”.
Separation and Unbundling

- **Cashflow interdependencies**: Whether the cashflow of the multiple insurance components are interdependent.
- **How the components are managed**: Whether different components are managed differently.
- **Timing of lapses**: Whether different components lapse together or separately.
- **Standalone contract**: Whether the coverage can be sold independently, as part of a contract/part of host policy.
Module 4:
Recognition, Modification and Derecognition of insurance contracts
Recognition

- An entity shall recognize a group of insurance contracts it issues from the **earliest** of the following:

- The date when the first payment from a policyholder in the group becomes due

- The beginning of coverage period of the group of contracts

- For a group of onerous contracts, when the group becomes onerous

If there is no contractual due date, the first payment from the policyholder is deemed to be due when it is received.

- Enhancement to current process and system may be required enable comparison of the dates, and selecting the earliest date as start of recognition
Modification
An insurance contract may be modified, either by *agreement between the parties* or by a *change in regulation*. The original contract will be *derecognized and recognize the modified contract as a new contract*, if any of the conditions are satisfied:

- The modified contract would have been excluded from the scope of IFRS 17
- Different components would have been separated from the host insurance contracts, resulting in a different insurance contract
- Modified contract would have been included in a different group of contracts
- Would had a substantially different contract boundary

If modified terms had been included in contract inception:

**OR**

The modified contract no longer meets:

- The definition of an insurance contract with direct participation features
- The eligibility criteria for the premium allocation approach
## Recognition, modification and derecognition

### Contract Boundary

Period in which entity can compel policy holder to pay premium and entity has a substantive obligation to provide the policyholder with coverage

<table>
<thead>
<tr>
<th>Single contract</th>
<th>Portfolio</th>
</tr>
</thead>
</table>
| Entity has practical ability to **reassess risk** of particular policyholder and **can re-price** to fully reflects those risks | Entity has practical ability to **reassess risk** of particular policyholder and **can re-price** to fully reflects those risks

**AND**

The pricing of the premiums for coverage up to the date when the risks are reassessed **does not take into account the risks that relate to periods after the reassessment date**
4 Recognition, modification and derecognition

Group Life / Individual Annual Motor - Product Features

- Contract is for a period of one year
- Contracts are annually renewable.

Yearly renewable term (YRT) insurance

Policyholder
- pay premiums for one year
- no obligation for policyholder to renew

Insurer
- pay claims if the insured event occurs during that same year
- no right to refuse the renewal but unrestricted power to set new premium for the new annual term

No restriction on the price for any further new contracts
**Group Life / Individual Annual Motor - Product Features (cont’d)**

- Only the premiums for the first annual term should be taken into account. Premium for the second year should be counted as another contract and so on.
- The restriction on the insurer’s ability to freely re-price only applies during the first year.
- At the end of the contract period, there is no restriction.
- The insurer can then re-assess the policyholder’s risk profile until the end of that year and conclude the repricing only by reference to the risks arising from the next twelve months i.e. the next repricing date. This applies to both individual and portfolio repricing of contracts.
4 Recognition, modification and derecognition

**Term assurance with premium review**

Premiums are guaranteed for a certain number of years.

- Fixed Premium 1
- Fixed Premium 1
- Fixed Premium 1
- Fixed Premium 1
- Fixed Premium 2
- Fixed Premium 2
- Fixed Premium 2
- Fixed Premium 2

Premiums may increase or decrease, depending on how aggregate experience of the portfolio unfolds.

**Term Insurance**

**Policyholder**
- Can reject the premium charge and the contract would cease

**Insurer**
- Can review the premium rate for the renewal term
Module 5: Level of Aggregation
### Level of Aggregation

**Portfolio**: Similar risk managed together

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
<th>Year n</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year n</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Onerous</td>
<td>Others</td>
<td>No significant possibility of becoming Onerous</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Assessment is done at contract inception – no subsequent re-assessment.

Assessment based on:
(a) Likelihood of changes in assumptions (PAA: facts and circumstances) which, if they occurred, would result in the contracts becoming onerous.
(b) Using internal information about changes in estimates (consistent with internal reporting).
Level of Aggregation

**Annual Cohort**

- Permitted to group only contracts issued no more than one year apart.
- Group of contracts which is onerous - A loss is recognized in the P&L at inception.
- Group of contracts which is profitable - CSM is recognized and released as insurance service is provided

<table>
<thead>
<tr>
<th>Y1</th>
<th>Y2</th>
<th>Y3</th>
<th>Y4</th>
<th>Y5</th>
<th>Total profit</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>-</td>
<td>120</td>
</tr>
<tr>
<td>-</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>36</td>
</tr>
<tr>
<td>30</td>
<td>39</td>
<td>39</td>
<td>39</td>
<td>9</td>
<td>156</td>
</tr>
</tbody>
</table>

**With annual cohorts:**

| Contracts written in Y1 and Y2 | 30 | 36 | 36 | 36 | 18 | 156 |

**Without annual cohorts:**

| Contracts written in Y1 and Y2 | 30 | 36 | 36 | 36 | 18 | 156 |

Source: IASB
## Annual Cohort (cont’d)

### With annual cohorts:

<table>
<thead>
<tr>
<th></th>
<th>Y1</th>
<th>Y2</th>
<th>Y3</th>
<th>Y4</th>
<th>Y5</th>
<th>Total profit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contracts written in Y1</td>
<td>30</td>
<td>30</td>
<td>(20)*</td>
<td>-</td>
<td>-</td>
<td>40</td>
</tr>
<tr>
<td>Contracts written in Y2</td>
<td>-</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>36</td>
</tr>
<tr>
<td></td>
<td>30</td>
<td>39</td>
<td>(11)</td>
<td>9</td>
<td>9</td>
<td>76</td>
</tr>
</tbody>
</table>

### Without annual cohorts:

<table>
<thead>
<tr>
<th></th>
<th>Y1</th>
<th>Y2</th>
<th>Y3</th>
<th>Y4</th>
<th>Y5</th>
<th>Total profit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contracts written in Y1 and Y2</td>
<td>30</td>
<td>36</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>76</td>
</tr>
</tbody>
</table>

Source: IASB
5 Level of Aggregation

Guidance

• Contracts within each product line, such as annuities and whole-life, would be expected to have similar risks, and hence contracts in different product lines would be expected to be in different portfolios.

• An entity should assess the risk of the contracts in a group becoming onerous in a manner consistent with how the entity’s internal reporting provides information about changes in estimates such as sensitivity analyses or risk-adjusted profitability analyses.

• An entity should assess whether there is no significant risk of the contracts in the group becoming onerous, based on the sensitivity of the fulfilment cash flows to changes in estimates which, if they occurred, would result in the contracts becoming onerous.

• An entity may choose to divide the portfolios into more groups if the entity’s internal reporting provides information that distinguishes at a more granular levels of profitability and different risks of contracts becoming onerous.

• Some cash flows are not directly attributable to groups of contracts, hence such cash flows must be estimated at a higher level and then allocated to groups of contracts.

• Cash flows that are directly attributable to an individual contract can also be estimated at a higher level and then allocated to individual contracts or groups of contracts.
Module 6:

General Measurement Model: Building Block Approach
Learning objectives

• To understand the requirements of the general model (i.e. Building Block Approach) under IFRS 17
• To get an overview of the 4 building blocks under the general model
• To take a deep dive and understand the process and issues of estimating future cash flows
• To explore the criteria and possibility of using a simplified model (i.e. premium allocation approach)
Unlocking CSM is modified to include changes in financial variables affecting the insurer’s discretion.
Building Block Approach
Overview of requirements
Measurement requirements
The General Model a.k.a. the Building Blocks Approach ("BBA")

**Principles**
- Measurement uses current estimate assumptions
- Contracts are grouped by portfolio, year of sale and one of the three possible profitability levels
- Profit measured and reported based on the delivery of the "insurance coverage service"
- Deferred profit absorbs assumption changes for future coverage ("Unlocking")
- Discount rates based on market interest rates (currency, duration, liquidity)
- Expected profit from participating contracts revalued based on assets

Measured at inception as the expected contract profit to be earned as services are fulfilled. It is **adjusted for changes in non-financial variables** affecting future coverage cash flows. It **accretes interest based on day 1 discount rate** (locked-in rate)

An entity-specific assessment of the uncertainty about the amount and timing of future cash flows

An adjustment that converts future cash flows into current amounts

Expected (probability-weighted) cash flows from premiums, claims, benefits, expenses and acquisition costs
Building Block Approach (‘BBA’)  
Overview measurement at initial recognition

**Balance Sheet Liability**

**Block 1 + Block 2 + Block 3 < 0**
Recognise Contractual Service Margin (= Block 4) to eliminate Day One Gain (at inception before any cash flows are received or paid)

**Block 1 + Block 2 + Block 3 > 0**
Recognise Day One Loss (Onerous Contract)

---

**Overview measurement at initial recognition**

**Cash flow (−)**
- Premiums
- Taxes
- Direct Attr. Acquisition Costs

**Cash inflow (+)**
- Immediately after inception
- Year 1
- Year 2
- ... Year 8

**Maturities**
- Building Block 1
- Building Block 2
- Building Block 3
- Building Block 4

---

**Accounting Perspective of the Insurance Contract Liability** whereby:
- negative amount increases liability and positive amount decreases liability

---

**Time**
- Sum of Future Cash Flows
- Time Value of Money
- Risk Adjustment
- Contractual Service Margin

**Day One Gain**
- immediately after inception

**Day One Loss**
- immediately after inception
Building Blocks Approach (BBA)
Initial recognition and after one day – single premium

- **Premium before expenses**

  - **Day 0**
    - **Negative BEL** (an asset, discounted net CF is an inflow), positive CSM
    - **Liability nets to zero**

  - **Received single premium**
    - **CSM**
    - **BEL**
    - **Positive liability**

  - **Paid commissions and expenses**
    - **CSM**
    - **BEL**
    - **Positive liability**

- **Positive BEL** (a liability) discounted net CF is an outflow after receiving premiums

- **Reduced BEL** (outflows) after paying expenses

Assuming CSM changes are immaterial for 1 day (interest accretion, change in estimates, CSM release, etc.)
Building Blocks Approach (BBA)
Initial recognition and after one day – single premium

Assuming CSM changes are immaterial for 1 day (interest accretion, change in estimates, CSM release, etc.)
Building Block 1: future cash flows

Overview

Expected cash flows

- **Current** estimate of all cash-flows that will arise (re-assessed at each reporting period), including:
  - All contractual cash flows (inflows and outflows)
  - All expenses related cash flows plus fixed and variable overheads directly attributable to fulfilling the portfolio
  - Acquisition cash flows on a direct allocation basis to the portfolio (no restriction to incremental costs), even when sales efforts have been unsuccessful
- Incorporate, in an unbiased way, all available information about the amount and timing of all cash flows within the boundaries of a contract.
- Probability weighted cash flows to reflect all possible scenarios, even those with low probability - Stochastic modelling may be required (e.g. options and guarantees).
- If observable market data exists, incorporate it in the model to the maximum extent possible.
- Non-market variables utilise current entity-specific assumptions.

<table>
<thead>
<tr>
<th>IFRS 17 Technical Requirement</th>
<th>Description</th>
<th>Impact</th>
<th>Impact (H/M/L)</th>
</tr>
</thead>
</table>
| **Best Estimate Cash Flow, Recognition & Boundaries** | • Recognition of contracts to be determined based on the earliest point in time of start of coverage period, date first payment is due from policyholder or where there is evidence contract will be onerous.  
  • Contract boundaries will need to be clear and explicit on the point at which the insurer is no longer required to provide coverage or can fully reassess and re-price the risk.  
  • Requirement to produce best estimate cash flows. | • Recognition – earlier of the three dates specified (incl. non incepted contracts).  
  • Boundaries – analysis to be performed taking into account characteristics of contracts.  
  • Best estimate cash flows – common concept to SII/MCEV but the actual cash flows can differ. | H/M/L          |

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Overview

Expected cash flows infographic

The estimates of cash flows used to determine the fulfilment cash flows shall include all cash inflows and cash outflows that relate directly to the fulfilment of insurance contracts and these estimates shall be explicit, unbiased, probability-weighted and are updated at each reporting period using market prices where directly observable – entity specific estimates in all other cases.

Characteristics of cash flows estimates

Represent range of scenarios that reflects the full range of possible outcomes

Each scenario specifies the amount and timing of the cash flows for a particular outcome, and the estimated probability of that outcome.

The cash flows from each scenario are discounted and weighted by the estimated probability of that outcome in order to derive an expected present value that is consistent with market variables.

Estimates of cash flows are updated at each reporting period

In practice an insurer needs:
1. Quantified cash flows scenarios
2. Probabilities for each scenarios

The result is a statistical mean of probability-weighted cash flows
Overview

Directly attributable acquisition cash flows

- Acquisition costs are costs of selling, underwriting and initiating an insurance contract and include costs that cannot be attributed directly to individual insurance contracts in the portfolio.
- Directly attributable acquisition cash flows that can be allocated on a rational and consistent basis to the individual portfolios of insurance contracts.
- Acquisition costs are included as part of the cash flows. Implicitly these expenses are deferred through a reduction in the contractual service margin. For the purpose of measuring insurance contract revenue, an entity shall allocate the directly attributable acquisition costs over the coverage period in the systematic way that best reflects the transfer of services provided under the contract.
- More details on the next slide.

<table>
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<th>Impact</th>
<th>Impact (H/M/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Directly attributable acquisition cash flows</td>
<td>• Insurance companies that issue insurance contracts and investment contracts have to treat directly attributable acquisition costs differently (insurance contracts at group level / investment contracts at contract level).</td>
<td>• Flexible and adequate cost accounting systems in place for initial and subsequent measurement.</td>
<td>M</td>
</tr>
</tbody>
</table>
Building Block 1: future cash flows
Cash flows included and excluded in best estimate cash flows

Cash flow included:

- Premiums and cash flows that arise within the “contract boundary”
- Claims and benefits paid to policyholders, plus associated costs
- Surrender and participating benefits
- Cash flows resulting from options and guarantees
- Costs of selling, underwriting and initiating that can be directly attributable to a portfolio level
- Transaction-based taxes and levies
- Policy administration and maintenance costs
- Some overhead-type costs such as claims software, etc.

Cash flow excluded:

- Investment returns
- Payments to and from reinsurers
- Cash flows that may arise from future insurance contracts
- Acquisition costs not directly attributable to obtaining the portfolio of contracts
- Cash flows arising from abnormal amounts of wasted labor
- General overhead
- Income tax payments and receipts
- Cash flows from unbundled components
Building Block 2: time value of money

Overview

• Characteristics of the BBA discount rate (adjusts cash-flows for time value of money):
  – Curve, not a flat rate;
  – Market data for durations where there is a market;
  – Long term averages/extrapolations where there is no market.

• Discount rate based on characteristics of the insurance liability (updated each reporting period):
  – Currency, duration, liquidity and dependency on underlying items
  – Consistent with observable current market inputs for instruments with similar cash flow characteristics
  – Rates should exclude factors not relevant to the insurance liability

• If amount, timing or uncertainty of cash-flows depend on return from underlying items the discount rate should reflect that dependency (e.g. asset-dependency)

<table>
<thead>
<tr>
<th>IFRS 17 Technical Requirement</th>
<th>Description</th>
<th>Impact</th>
</tr>
</thead>
</table>
| **Discounting**               | • Insurers are required to discount future cash flows to a present value basis.  
   • Yield curve may be determined using “top down” or “bottom up”. Need to adjust discount rate for  
     a) duration mismatch;  
     b) expected credit losses on reference asset/portfolio of assets.  
   • If cash flows depend (wholly or partly) on the returns of underlying items, the discount rate to measure those cash flows shall reflect the extent of that dependence. | **Impact** |
|                               | • Companies are familiar with discounting but need to come up with a methodology which could have significant impact on modelling, systems and data. Should consider whether RBC/EV methodology is appropriate for IFRS reporting or a new methodology is needed.  
   • Complexity of discount rates for cash flows depending on the returns of underlying items. | **Impact** |

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Building Block 3: risk adjustment

Overview

- The risk adjustment conveys information to users of financial statements about the entity’s perception of the effects of uncertainty about the amount and timing of cash flows that arise from an insurance contract.
- Measures the compensation required (i.e. a liability) to make the entity indifferent between:
  - fulfilling an insurance liability with a range of possible outcomes; and
  - fulfilling a liability that will generate fixed cash-flows with the same expected present value as the insurance contract
- Re-measured at each reporting period separately for liability for remaining coverage and liability for incurred claims
- Effects of diversification between portfolios is allowed if considered in the entity risk appetite; the valuation considers both favorable and unfavorable outcomes in a way that reflects the entity’s degree of risk aversion
- No technique specified but translation into confidence level required in the footnotes if confidence level is not selected as the valuation technique

<table>
<thead>
<tr>
<th>IFRS 17 Technical Requirement</th>
<th>Description</th>
<th>Impact</th>
</tr>
</thead>
</table>
| **Risk adjustment** | • Additional disclosure of equivalent confidence interval requirement for an adjustment for the effect of uncertainty (risk adjustment) about the amount and timing of future cash flows.  
• An insurer can use one of the following techniques for estimating risk adjustments: confidence level, conditional tail expectation, cost of capital. Other techniques are possible too.  
• Determination of separate risk adjustment for claims liabilities (life and non-life) is required. | • New concept for IFRS but SII or equivalent risk margin approaches could be leveraged. |

| | Impact (H/M/L) | Life | Non-Life |
| | | | |
| | | M | M |
Building Block 4: contractual service margin

Overview

- Risk-adjusted expected profit from a contract (unearned profit in a contract)
- Unlocked for changes to non-market assumptions (within the coverage)
- Interest accretion calculated using locked-in discount rate (non-par and indirect par contracts)
- CSM cannot be negative, i.e. the present value of losses must be charged immediately to profit or loss
- Amortised over remaining coverage period based on coverage units
- Contract derecognition triggers release of any remaining CSM balance through change in coverage units
- Groups of contract must follow specific aggregation requirements. Groups are often referred to as “CSM cohorts” or “CSM units of account”.

<table>
<thead>
<tr>
<th>IFRS 17 Technical Requirement</th>
<th>Description</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contractual Service Margin (CSM)</td>
<td>• Eliminates gains at inception of a contract. • The release of the CSM is over the coverage period based on coverage units. • Measured at “group” level (units of account) • Requirement to “unlock” CSM for changes in assumptions related to future services at each reporting date. • “Negative” CSM (onerous losses) needs to be tracked as loss components for potential reversal to P&amp;L.</td>
<td>• Brand new concept for IFRS – impacting the timing of profit (transitional apply). • Unlocking requires integration between finance and actuarial systems and introduces additional data requirements. • Limited impact for non-life when PAA is adopted for the pre-claims liability where the full CSM will be implicitly reported.</td>
</tr>
</tbody>
</table>

Block 4 at inception =
(i) If the sum <0: Block 1 + Block 2 + Block 3
(ii) If the sum >0: Recognise day one loss
Building Block Approach
Illustrative example 1
Illustrative example 1
Measuring an insurance contract using the general model

Scenario A: Assuming that everything happens as expected during the coverage and settlement period

- A group of similar insurance contracts are issued to cover against the risk of theft for two years.
- The entity expects an inflow (premium) of $500 paid immediately before the start of the coverage period (t=0).
- A claim is expected to occur at the end of each year of coverage. The entity expects to settle the total claims of $500 immediately after the end of year 5.
- Assume risk adjustment to be zero; discount rate of 3%.
- The entity would measure the fulfilment CF at inception (Tº) as follows:

<table>
<thead>
<tr>
<th>Time</th>
<th>Components of the insurance contract liability</th>
<th>Nominal amount</th>
<th>Present Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tº</td>
<td>Expected inflows</td>
<td>500</td>
<td>500</td>
</tr>
<tr>
<td>T⁵</td>
<td>Expected outflows</td>
<td>(500)</td>
<td>(431)</td>
</tr>
<tr>
<td></td>
<td>Net expected cash flows</td>
<td></td>
<td>69</td>
</tr>
<tr>
<td></td>
<td>Risk Adjustment</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Fulfilment cash flows at inception</td>
<td></td>
<td>69</td>
</tr>
</tbody>
</table>
Illustrative example 1
Measuring an insurance contract using the general model

Measurement at inception

- The CSM ensures that no profit arises at inception of the contract, but is instead recognised over the coverage period when the service is provided. Profit represented by CSM is set at inception to be equal to the fulfilment CF.
- Consequently, when the insurance contract is issued before any cash is transferred or any service provided, the measurement of the contract is as follows:

<table>
<thead>
<tr>
<th>Fulfilment Cash Flows</th>
<th>69</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contractual Service Margin</td>
<td>(69)</td>
</tr>
<tr>
<td>Insurance Contract Asset/Liability</td>
<td>-</td>
</tr>
</tbody>
</table>

- The initial value of the insurance contract in this case would be zero.
Building Block Approach
Subsequent measurement
Subsequent measurement under BBA
Recognition of changes in estimates

- **CSM** is adjusted by changes in estimates related to future services and is allocated to P&L based on coverage units.
- For some contracts, changes in estimate include entity share of policyholder’s assets thus including both non-financial and financial variables.
- The **CSM** accretes interest after initial recognition.

In each reporting period, an entity re-measures the **fulfilment cash flows** using updated assumptions about cash flows, discount rate and risk.
Subsequent measurement under BBA
Recognition of changes in estimates

**Total IFRS Insurance Liability**

- **Block 1:** Expected Future Cash Flows (unbiased probability weighted mean)
- **Block 4:** Contractual Service Margin

‘Fulfilment cash flows’

**Profit or loss: insurance service result**

- Changes related to **past and current** services are reflected in P&L
- Changes related to **futures** services “unlock the CSM”
- Any changes not related to future services (e.g. changes from market variables) are reflected in P&L
Recognition of changes in estimates

**Profit or loss: insurance finance income/expenses OR other comprehensive income (OCI)**

- Unwind of the discount at locked-in rate (time value of money) is always reported in P&L
- Effect of changes in discount rates (difference between the present value of future cash flow discounted the current rate and locked-in rate) can be reported in:
  - OCI, or
  - P&L
- This is an accounting policy choice at portfolio level
Subsequent measurement under BBA
Recognition of changes in estimates

Profit or loss: insurance service result

- Changes related to **past and current** services reflected in P&L as the insurer is “released from risk”
- Changes related to **future** services “unlock CSM”
- Changes on the uncertainty from the liability for incurred claims are always in P&L
Subsequent measurement under BBA
CSM release to P&L and unlocking (1 of 2)

Profit or loss: insurance service result
• “Groups” must be formed to calculate the release of CSM and the unlocking adjustments
• CSM is released to P&L over time and it is fully earned by the end of the coverage period
• The release of CSM is based on the coverage units in a group. Each coverage unit equals to the amount of CSM released to P&L in a period for a given group
• The number of coverage units in a group is the quantity of coverage, determined by considering the quantity of the benefits provided and its expected coverage duration
• CSM release is performed based on the CSM at the end of the period (before recognising any amounts in P&L) equally to each coverage unit
Subsequent measurement under BBA
CSM release to P&L and unlocking (2 of 2)

**Profit or loss: insurance service result**

- **Unlocking due to favourable changes:**
  - No limit on the amount by which CSM can increase

- **Unlocking due to unfavourable changes:**
  - Limit imposed as CSM cannot be negative
  - Any unfavourable changes in excess of carrying amount of CSM as at date of change will be *recognised immediately in P&L*

- A “negative” CSM is referred to as a “loss component” of the BBA liability and it is reported and disclosed separately

- The reversal of the “loss component” must be booked through P&L
Subsequent measurement under BBA
CSM release to P&L and unlocking

<table>
<thead>
<tr>
<th></th>
<th>CSM</th>
<th>OCI</th>
<th>P&amp;L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lapse/Surrender</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mortality</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Morbidity</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other claims incidence and recovery rates for active lives</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acquisition expenses with direct link</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maintenance expense</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expense inflation</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Investment expenses</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Discount rate</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Risk adjustment</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Expected credit losses on RI assets</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Claims recovery rates for claim cases</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>IBNR assumptions</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Other assumptions in respect of past coverage</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>

Key variations

- Assumption that usually impacts CSM, **when CSM = 0** and assumption change is unfavorable
- Cash flows that are **asset dependent must follow the discount rate classification** (P&L or P&L/OCI)
- There will be no **adjustment to CSM for market variables** except for direct participating contracts
Subsequent measurement under BBA
Progression of liabilities from 1/1/13 to 31/12/13

Assume no experience variance in the period

- Passage of time at a group level

In force at 1/1/2013

- CSM
- Risk Adjustment
- Expect PV of Future Cash Flows

Old Assumption – Assumptions at the opening balance
Old Disc rate – Discount rate at inception

31/12/2013 A

- CSM
- Risk Adjustment
- Expect PV of Future Cash Flows
  - Old assump
  - Old disc rate

31/12/2013 B

- CSM
- Risk Adjustment
- Expect PV of Future Cash Flows
  - New assump
  - New disc rate

Change reflected in P&L

- Lower CSM means less profit from CSM release in the future

Change reflected in BS

- Through OCI if FVOCI or P&L if FVTPL
- Does not impact CSM

31/12/2013 C

Final BS
Subsequent measurement under BBA
Progression of liabilities over time with loss component

**Case 1:**
No assumption changes

End Year 1

End Year 2

End Year 3

**Case 2:**
Assumptions worsen in year 2, return to original in year 3

End Year 1

Old basis

New basis

End Year 2

End Year 3

The previously recognised loss must be reversed when conditions require it; after reversal CSM is recreated.
Building Block Approach
Illustrative example 1
Continued
Illustrative Example 1 – Scenario A
Measuring an insurance contract using the general model

Facts and assumptions are the same as previous illustrative example

**Measurement when the first instalment of the premium is received**

- Immediately after the contract is issued, the first premium is received.
- The entity increases the assets for the cash received and increases the insurance contract liability for the amount of $500.
- The components of the insurance contract liability change as follows:

<table>
<thead>
<tr>
<th>Time</th>
<th>Components of the insurance contract liability</th>
<th>Nominal amount</th>
<th>Present Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>T⁰</td>
<td>Expected premium</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Expected outflows</td>
<td>(500)</td>
<td>(431)</td>
</tr>
<tr>
<td>T⁵</td>
<td>Net expected CF</td>
<td></td>
<td>(431)</td>
</tr>
<tr>
<td></td>
<td>Risk adjustment</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Fulfilment CF</td>
<td></td>
<td>(431)</td>
</tr>
<tr>
<td></td>
<td>CSM</td>
<td></td>
<td>(69)</td>
</tr>
<tr>
<td></td>
<td>Insurance contract liability after premium is received</td>
<td>(500)</td>
<td></td>
</tr>
</tbody>
</table>

- The insurance contract liability at this point depicts the difference between what the entity has received and what it still needs to provide.
- In this example, the entity has received $500 of cash, but has not yet provided any service or paid any claims.
**Subsequent measurement over the coverage and settlement period**

- Assuming that everything progresses as expected, the amounts change as follows:

<table>
<thead>
<tr>
<th></th>
<th>Coverage period</th>
<th>Post coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fulfilment CF</strong></td>
<td>T¹</td>
<td>T²</td>
</tr>
<tr>
<td>Beginning balance</td>
<td>(431)</td>
<td>(444)</td>
</tr>
<tr>
<td>Interest accretion recognised in total comprehensive income</td>
<td>(13)</td>
<td>(13)</td>
</tr>
<tr>
<td>Ending balance</td>
<td>(444)</td>
<td>(457)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>CSM</strong></th>
<th>T¹</th>
<th>T²</th>
<th>T³</th>
<th>T⁴</th>
<th>T⁵</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginning balance</td>
<td>(69)</td>
<td>(35)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Interest accretion recognised in total comprehensive income</td>
<td>(2)</td>
<td>(1)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Amounts recognised in P&amp;L</td>
<td>35</td>
<td>36</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Ending balance</td>
<td>(35)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Insurance Contract Liability</strong></th>
<th>T¹</th>
<th>T²</th>
<th>T³</th>
<th>T⁴</th>
<th>T⁵</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginning balance</td>
<td>(500)</td>
<td>(479)</td>
<td>(457)</td>
<td>(471)</td>
<td>(485)</td>
</tr>
<tr>
<td>Ending balance</td>
<td>(479)</td>
<td>(457)</td>
<td>(471)</td>
<td>(485)</td>
<td>(500)</td>
</tr>
</tbody>
</table>
Recognition, modification and de-recognition

**Recognition**

- An entity shall recognise a group of insurance contracts it issues from the earliest of:
  - Beginning of the coverage period;
  - The date when the first payment from a policyholder becomes due; and
  - When the group becomes onerous.

**Modification**

- If the terms of an insurance contract are modified, an entity shall derecognise the original contract and recognise the modified contract as a new contract if there is a substantive modification, based on meeting any of the specified criteria.

**De-recognition**

- An entity shall de-recognise an insurance contract when it is extinguished or substantially modified.
Illustrative Example 1 – Scenario B
Measuring an insurance contract using the general model

Scenario B: Assuming a change in the expected cash flows during the coverage period

Based on the recent amounts of claims, the entity reviews its estimates of the expected cash outflows paid after the end of Year 5:

a) The first change in the expectations occurs shortly after the contract is written. New estimates for cash outflow is $530 instead of $500, an increase of $30.

- The entity will recognise a lower amount of the CSM in P&L than it initially expected. The change in the expected CF related to future coverage only affects the change between components of the insurance contract liability and, therefore, the total liability remains the same.
Illustrative Example 1 – Scenario B
Measuring an insurance contract using the general model (continued)

**Scenario B: Assuming a change in the expected cash flows after the coverage period**

b) The second change in expectations occurs immediately before the end of Year 3 (after the coverage period has finished), with expected cash outflow increasing by $20.

- The entity increases the fulfilment cash flows by $18. The change in estimate of the fulfilment CF relates to past coverage, so no adjustment to CSM (CSM is zero after coverage).
- The change is instead recognised immediately in P&L.
### Illustrative Example 1 – Scenario B

**Measuring an insurance contract using the general model**

**Subsequent measurement over the coverage and settlement period**

<table>
<thead>
<tr>
<th></th>
<th>Coverage period</th>
<th>Post coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fulfilment CF</strong></td>
<td>T¹</td>
<td>T²</td>
</tr>
<tr>
<td>Beginning balance</td>
<td>(431)</td>
<td>(471)</td>
</tr>
<tr>
<td>Change in estimates</td>
<td>(26)</td>
<td>-</td>
</tr>
<tr>
<td>Unwind of discount recognised in total comprehensive income</td>
<td>(14)</td>
<td>(14)</td>
</tr>
<tr>
<td>Ending balance</td>
<td>(471)</td>
<td>(485)</td>
</tr>
</tbody>
</table>

| **CSM**               | T¹   | T²   | T³   | T⁴   | T⁵   |
| Beginning balance     | (69)  | (22)  | -    | -    | -    |
| Change in estimates   | 26   | -    | -    | -    | -    |
| Interest accretion recognised as interest expense | (1)  | (1)  | -    | -    | -    |
| Release recognised in P&L | 22  | 23   | -    | -    | -    |
| Ending balance        | (22)  | -    | -    | -    | -    |

| **Insurance Contract Liability** | T¹   | T²   | T³   | T⁴   | T⁵   |
| Beginning balance      | (500) | (493) | (485) | (518) | (534) |
| Ending balance         | (493) | (485) | (518) | (534) | (550) |
Best Estimate Liability (BEL)
Learning objectives

• To obtain a deeper understanding of block 1 – Best Estimate Liability (BEL) under the Building Block Approach
• To interpret the requirements of BEL under IFRS 17
• To learn the issue with asymmetric cash flows and suggested solution
• To understand the requirements of contract boundary and application to various insurance products
Best Estimate Liability

Introduction

• IFRS 17 requires that insurance contracts are accounted for as one carrying amount with explicitly reported components

• Central to the new accounting is the amount defined as the “fulfilment cash flows”

• This is a single net amount that gives the accounting representation of all rights and obligations from an insurance contract. It is always present even when there is no CSM

• It is made of future outflows and inflows. Deloitte and our clients have analysed it as the combination of three building blocks:

  1. Undiscounted probability-weighted cash flows
  2. Discount rate curve
  3. Risk adjustment liability

• We refer to the combination of 1 and 2 as the “Best Estimate Liability” (BEL)
Best Estimate Liability
Definition of IFRS 17 BEL

Para 33: An entity shall include in the measurement of a group of insurance contracts all the future cash flows within the boundary of each contract in the group.

Application guidance:

Market variables:

B44: Estimates of market variables (e.g. interest rates) shall be consistent with observable market prices.

B46: If a replicating portfolio of assets exists for some of the cash flows that arise from a group of insurance contracts, the entity can use the fair value of those assets to measure the relevant fulfilment cash flows instead of explicitly estimating the cash flows.

Non-market variables:

B49: Estimates of non-market variables shall reflect all reasonable and supportable evidence available without undue cost or effort, both external and internal.

B50: Give more weight to the more persuasive information (when considering external vs internal data).

B53: Scenarios should take into account correlations between market and non-market variables.
Best Estimate Liability
Definition of IFRS 17 BEL

Para 33 (cont’d):
b) reflect the perspective of the entity, provided that the estimates of any relevant market variables are consistent with observable market prices for those variables;

Application guidance:
Fulfilment cash flows are simply defined as all cash flows to fulfill the insurance contract (within the contract boundary).

Those estimates shall:

a) incorporate, in an unbiased way, all reasonable and supportable information available without undue cost or effort about the amount, timing and uncertainty of those future cash flows. To do, an entity shall estimate the expected value (i.e. the probability-weighted mean) of the full range of possible outcomes;

Application guidance:
Best estimate of cash flows should be used

B37: this determine the expected value, or probability-weighted mean, of the full range of possible outcomes, considering all reasonable and supportable information available at the reporting date without undue cost or effort.

B39: In practice, developing explicit scenarios is unnecessary if the resulting estimate is consistent with the measurement objective of considering all reasonable and supportable information available without undue cost or effort when determining the mean.
Best Estimate Liability
Definition of IFRS 17 BEL

Para 33 (cont’d):
c) be current—the estimates shall reflect conditions existing at the measurement date, including assumptions at that date about the future;

**Application guidance:**

Assumptions are never locked-in on the balance sheet. The only assumption that can be locked in for P&L presentation purposes only is the discount rate.

B55: Updated probability estimates should **faithfully represent** the **conditions** at the **end of the reporting period**.

B56: Current estimates of expected cash flows are not necessarily identical to the most recent actual experience.

B58: Consider not only current information about the current level of insured events but also information about **trends**.

B60: **Do not reflect events such as change in legislation**, that would change the present obligation under the existing insurance contract **until the change in legislation is substantively enacted**.
Best Estimate Liability
Definition of IFRS 17 BEL

Para 33 (cont’d):

d) be explicit—the entity shall estimate the adjustment for non-financial risk separately from the other estimates. The entity also shall estimate the cash flows separately from the adjustment for the time value of money and financial risk, unless the most appropriate measurement technique combines these estimates.

Application guidance:
Cash flows, uncertainty around cash flows, and the time value of money should be separately measured in determining the ‘fulfillment cash flows’ (BEL + RA in our schematic representation of the liability under the BBA)
## Best Estimate Liability
### Definition of IFRS 17 BEL

<table>
<thead>
<tr>
<th>Cash Flow</th>
<th>To be Included</th>
<th>To be Excluded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Premium</td>
<td>• Premiums and cash flows within contract boundary</td>
<td>• Premiums and cash flows from future insurance contracts or unbundled components</td>
</tr>
<tr>
<td>Claims</td>
<td>• Claims and benefits within contract boundary</td>
<td>• Claims and benefits of future insurance contracts or unbundled components</td>
</tr>
<tr>
<td>Expense</td>
<td>• **Overhead-type costs (e.g. costs of accounting and human resources)**¹</td>
<td>• Payments to and from reinsurers</td>
</tr>
<tr>
<td></td>
<td>• Policy administration and maintenance costs</td>
<td>• Non-Directly attributable acquisition costs²</td>
</tr>
<tr>
<td></td>
<td>• Costs of selling, underwriting and initiating</td>
<td>• General overhead (e.g. Product development cost and training costs)**¹</td>
</tr>
<tr>
<td></td>
<td>• Claims handling costs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Options and guarantees cash flows</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• <strong>Directly attributable insurance acquisition cash flows</strong>²</td>
<td></td>
</tr>
<tr>
<td>Tax</td>
<td>• Premium taxes and levies</td>
<td>• Income tax payments</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td>• Investment returns</td>
</tr>
</tbody>
</table>

**Note:**

1) The general overhead costs like *product development and training costs* should be excluded in the calculation of BEL as these cash flows cannot be directly attributed to the portfolio of insurance contracts that contain the contract. Other overhead-type costs, like *costs of accounting and human resources*, are able to be directly attributable to fulfilling the portfolio that contains the insurance contract. So they are cash flows included.

2) Not all acquisition costs are excluded. Some acquisition costs that are attributable to a portfolio of insurance contracts should be included in the calculation of BEL. For example salary costs of call centres employees who call potential customers to offer them insurance contracts.

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Deep dive
Estimation of future cash flows
Insurance cash flows
The basics

- A cash flow is the amount of money being transferred in and/or out of a business because of contracts that business has issued to other parties and that affects both the liquidity and profitability of a company.

- IFRS 17 requires us to consider all the cash flows arising from a group of insurance contracts.

<table>
<thead>
<tr>
<th>Insurance contracts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash Inflows (i.e. money in)</td>
</tr>
<tr>
<td>Cash Outflows (i.e. money out)</td>
</tr>
<tr>
<td>Premiums</td>
</tr>
<tr>
<td>Policy benefits</td>
</tr>
<tr>
<td>Policyholders’ charges (e.g. cost of insurance)</td>
</tr>
<tr>
<td>Expenses</td>
</tr>
</tbody>
</table>
### Insurance cash flows

#### The basics

<table>
<thead>
<tr>
<th>Policy Benefits</th>
<th>Expenses</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Paid on death (sum assured upon the occurrence of death)</td>
<td>• Commissions</td>
</tr>
<tr>
<td>• Paid on disability or sickness (a fraction of face amount upon disability or sickness)</td>
<td>• Other sales costs</td>
</tr>
<tr>
<td>• Paid at maturity or on retirement (sum assured upon maturity or retirement)</td>
<td>• Policy set-up costs</td>
</tr>
<tr>
<td>• Paid regularly, e.g. annuities or pensions (agreed amount upon annuitization or retirement)</td>
<td>• Administrative costs</td>
</tr>
<tr>
<td>• Paid on surrender of the policy (cash surrender value upon surrender)</td>
<td>• Overhead (fixed costs)</td>
</tr>
</tbody>
</table>

- **Categories of expenses:**
  - Distribution costs (acquisition costs)
  - Operating costs (maintenance)

- **Variable versus fixed:**
  - Costs that are in proportion to business volumes
  - Costs that are not affected by the volume of sales
Insurance cash flows
The basics

Net cash flow = money in - money out

- Net cash flows will include different types of cash flows
- Cash flows will arise from insurance contracts and the assets backing the liabilities from those contracts

Insurance cash inflow:
- Premium/policyholders’ charges

Insurance cash outflow:
- Policy benefits: death, surrender or maturity benefit payments
- Additional discretionary payment: bonuses or dividends
- Expenses, including commission

Cash inflows from assets backing insurance contracts
- Investment return (including income & gains) will play a role in determining the discount rate and/or the cash flows when there is a dependency on underlying items
Insurance cash flows
Cash flows for different insurance products

- All insurance companies have similar cash flows – contract cash inflows and outflows, expenses.
- For certain products cost of insurance tends to be explicit whilst for others it is implicitly charged to the policyholders. Various products’ premiums allow for the cost of insurance to be included in the premium charge.
- However, premiums, charges and benefits tend to depend on the product types. Some examples:

<table>
<thead>
<tr>
<th>Product</th>
<th>Premiums</th>
<th>Policyholders’ charges</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Term Assurance</td>
<td>Regular Premium</td>
<td>Cost of insurance</td>
<td>Payment on death</td>
</tr>
<tr>
<td>Whole of Life</td>
<td>Regular Premium</td>
<td>Cost of insurance</td>
<td>Payment on death</td>
</tr>
<tr>
<td>Immediate Annuity</td>
<td>Single Premium</td>
<td>Cost of survival</td>
<td>Regular income on survival</td>
</tr>
<tr>
<td>Unit Linked Endowments</td>
<td>Regular or single premium</td>
<td>Cost of insurance</td>
<td>Payment on death or maturity</td>
</tr>
<tr>
<td>Health protection</td>
<td>Regular or single premium</td>
<td>Cost of morbidity</td>
<td>Payment on sickness</td>
</tr>
<tr>
<td>General insurance cover</td>
<td>Regular or single premium</td>
<td>Cost of insurance</td>
<td>Payment on claims</td>
</tr>
</tbody>
</table>
Insurance cash flows
Example 1 – One policy

- Cash flows for ONE policy are in many cases on/off
  - A policyholder will either live or die
  - A policyholder will surrender
  - A policyholder will either be around until maturity or not
  - A policyholder will either have a claim or not
- Are these scenarios concurrent or independent of one another?
- What happens to other cash flows when the above events happen (present and future)?
  - To premium
  - To investment income (impact on discount rate or asset dependent cash flows)
  - To death, surrender and maturity benefits
  - To claims payments
  - To commission
  - To expenses
Insurance cash flows
Example 2 – A group of policies

• But in reality, insurance companies issue more than one policy

• Example 2 – Let us look at what happens to cash flows if a company issues 1,000 policies at ONE POINT IN TIME and the following happens:
  – Ten policyholders die in year 5 out of 1,000 policies
  – Ten policyholders surrender in year 8 out of 1,000 policies
  – Only half of the policyholders are around to collect the maturity benefit - How many ways can this happen?
Insurance cash flows
Example 3 – A group of policies

• In fact, insurance companies issue millions of policies!

• Example 3 – Let us look at what happens to cash flows if a company issues 1,000,000 policies at ONE POINT IN TIME and the following happens:
  – Five hundred policyholders die every year for the last five years
  – Five hundred policyholders surrender every year starting in year 3
  – These two scenarios happen at the same time
Insurance cash flows
Example 4 – A group of policies

• Moreover, on top of issuing millions of policies, these policies are not issued at one point in time

• Example 4 – Let us look at what happens to cash flows if a company issues 1,000 policies EACH year for two years and the following happens:
  – Ten policyholders from each issue year die in year 5 out of 1,000 policies
  – Ten policyholders from the first batch surrender in year 8 out of 1,000 policies
  – Only half of the policyholders from each issue year are around to collect the maturity benefit
Insurance cash flows
Example 5 – A group of policies

- For an existing company, these policies are issued over many years.

- Example 5 – Let us look at what happens to cash flow if a company issues 1,000 policies EACH year for five years and the following happens:
  - Fifty policyholders die every year from each issue year for the last five years.
  - Fifty policyholders surrender from the first three issue years starting in year 3.
  - These two scenarios happen at the same time.
The following graph shows the complexity in modeling cash flows. In reality, insurance companies issue over millions of policies, which are not issued at one point in time. Companies will need to consider multiple products across multiple markets and multiple time periods.

Note: The policies are written over time which adds complexity to any cash flow modeling.
Insurance cash flows
Types of cash flow models

“Heavy models”

• Spreadsheet
• VBA
• Admin system
• Proprietary actuarial system

“Lite models”

• Closed-form solutions
• Calibrated short-form formulae
• Replicating portfolios
## Insurance cash flows

### Types of cash flow models

<table>
<thead>
<tr>
<th>Heavy Models:</th>
<th>Description</th>
<th>Advantage</th>
<th>Disadvantage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spreadsheet</td>
<td>• Almost any calculations</td>
<td>• Small companies</td>
<td>• Anything requiring robust controls, that won’t crash, or that involves a lot of data or calculations</td>
</tr>
<tr>
<td></td>
<td>• But not many of them in a non-industrial context</td>
<td>• Minor calcs / adjustments</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• (but only with good controls!)</td>
<td></td>
</tr>
<tr>
<td>VBA</td>
<td>• Like a spreadsheet but in code</td>
<td>• Doing spreadsheet calculations but with better controls &amp; quicker run-time</td>
<td>• Linking back to other systems (e.g. dynamic calculations)</td>
</tr>
<tr>
<td></td>
<td>• Can be industrialized, but just calculations</td>
<td>• Stand-alone calculations</td>
<td></td>
</tr>
<tr>
<td>Admin system</td>
<td>• Store data</td>
<td>• Storing &amp; keeping track of data</td>
<td>• Full projections</td>
</tr>
<tr>
<td></td>
<td>• Do simple calculations with that data</td>
<td>• Simple calculations, e.g. net premium reserves</td>
<td>• Anything that needs to be optimized for run-time or memory usage</td>
</tr>
<tr>
<td></td>
<td>• Report on data</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proprietary actuarial system</td>
<td>• Cash flow modelling</td>
<td>• Detailed cash flow modelling</td>
<td>• Simple calculations</td>
</tr>
<tr>
<td></td>
<td>• Some storage &amp; link to other systems</td>
<td>• ALM</td>
<td>• Usage by anyone who is not trained in the system</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Stochastic calculations</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Anything that needs to be optimized for run-time or memory usage</td>
<td></td>
</tr>
</tbody>
</table>
### Types of cash flow models

**Insurance cash flows**

<table>
<thead>
<tr>
<th>Description</th>
<th>Advantage</th>
<th>Disadvantage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Close form solutions</strong></td>
<td>• Using carefully calibrated Black &amp; Scholes-like techniques</td>
<td>• Can avoid the need for Monte Carlo stochastic calculations or potentially asset modelling</td>
</tr>
<tr>
<td><strong>Short form formulae (risk geographies)</strong></td>
<td>• <strong>BEL = aX^2 + bY^2 + cZ^2 + dX + eY + fZ + g + hXY + iXZ + jYZ</strong>&lt;br&gt;Where the independent variables X, Y, Z represent the stress level of the risk drivers, e.g.&lt;br&gt;− X = risk-free rates&lt;br&gt;− Y = equity volatility&lt;br&gt;− Z = lapse rates</td>
<td>• Very neat, “easy” for senior management to visualize&lt;br&gt;• Can be set up before year end, then used quickly at year-end</td>
</tr>
<tr>
<td><strong>Replicating portfolio</strong></td>
<td>• If a replicating portfolio exists and can be measured directly, there is no need to use BBA for the part of the liability that is replicated by that portfolio. The measures of the replicating portfolio and the replicated cash flows arising from the liability are identical</td>
<td>• Similar advantages to short-form formulae</td>
</tr>
</tbody>
</table>
Insurance cash flows
Assumptions

• Before determining the cash flows, we need to establish a set of assumptions about the future in order to produce expected present values of projected cash flow.

• Actuaries will have various processes and methods to set these assumptions which will then feed into projection models to produce outputs.

• Depending on the type of product, some of these assumptions will have a greater impact than others, whereas some assumptions may only have an immaterial impact.
Insurance cash flows
Key assumptions – Money in

- How much **premium** will I receive?
  - Sales volume
  - Premium rates

- How much **investment income** will I earn?
  - Setting an appropriate discount rate
  - Establishing asset dependency with the cash flows
Insurance cash flows
Key assumptions – Money out

- When will policyholders **die**?
  - Probability of a claim

- When will policyholders **give up the policy**?
  - Probability of paying the cash surrender value

- How many policyholders will be around to collect their **maturity benefit**?
  - Both of the above

- How much do I **pay my agents** / sales director?
  - Commissions

- How much does it **cost to set up an insurance operation**?
  - Overhead (e.g. office space, equipment, one-off investments)

- How much do I **pay my controllers / actuaries / underwriters / CEO**?
  - A way to bring expenses to individual policy level i.e. running costs
Insurance cash flows
Assumptions

In general, companies need these assumptions to project cash flows and hence produce business plan figures. Various departments produce the different assumptions.

• Marketing & sales
  – New business volume
  – Premium rates
  – Commission rates

• Product development / actuarial
  – Premium rates
  – Mortality
  – Lapse
  – Expenses

• Investment
  – Investment yield
Insurance cash flows
Assumptions

A large number of assumptions are needed in order to arrive at an Best Estimate Liability (BEL). Here we will only discuss the 4 key assumptions that are a part of this cash flow model due to their relative importance.

Unstable Average

- Expenses & Commissions
- Interest rates*
- Lapses
- Mortality

More under the control of management

Less under the control of management

Less uncertainty

*Interest rates are used to set discount rates. This will be covered later
Insurance cash flows
Assumptions - Mortality

• Insurance companies issue millions of policies. However, there is no need to guess when policyholders will die.

• Some statisticians have put in the efforts to survey this data and organized the information into summaries called MORTALITY TABLES!

• What are mortality rates in a mortality table?
  – Probability or chance of a death
  – We **don’t need to predict which specific people will die**, we can assume a part of all policies ‘die’ and get the correct number of projected deaths
  – It means that we **don’t need a separate individual projection** of when every policyholder will specifically die (i.e. assuming no fractions of policies) using random results from a mortality distribution (i.e. stochastic mortality)
  – .... But this **works much better when you have more policies**; because fractions of policyholders don’t die!
  – Just like the toss of a coin.... On average we’ll see 50%, but we will not see half an head and half a tail on every toss!
    - After 5 tosses we could potentially see 5 heads!
    - But after a million, it will end up being much closer to the 50% average.
Assumptions - Lapses

- It is very important to appreciate the following facts about lapses:
  - Product design influences lapse experience (probability of lapse)
  - It is an option the customer can chose to use, or not
  - There is value to the “option” to the customer at a given point in time
  - Economic factors beyond the business (e.g. stock markets) affect lapses
- First year lapse rates are generally much higher than subsequent years
- Lapsing often depends on external factors such as:
  - Interest trends
  - Improved sales techniques
Insurance cash flows
Assumptions - Expenses

• In any business, the owner needs to ask himself: How much does it cost to provide my products / services?

• The common expense items are: salary, rent, inventory, distribution, etc.

• The owner would need to convert these expenses into “cost per product” amounts.

• Once he determines the cost, he can go about setting the price for the product.

• Insurance companies do the same: They need to understand the “cost” of a policy before deciding how much to charge for it.

• There are two parts to this cost:
  – the cost of the insurance, and
  – the expenses to provide the product.

• When we talk of “expenses” for insurance we are typically referring to the non-benefit related expenses of providing a policy like salaries, rent, and costs of supplies. The cost of the insurance or “cost of claims” is another matter (akin to the cost of goods sold in a manufacturing context).
Insurance cash flows
Assumptions - Commissions

• We also need to examine actual commission rates
• This is relatively simple
• Commissions are driven by two items
  – *Premium*
  – *Commission rates*
• Premium are actual premiums that flow into the company
• Commission rates are mostly contractual and they can be easily looked up in the agreements
Best Estimate Liability (BEL)  
\[ \text{BEL} = \sum \text{PV} (\text{Expected Cash outflows}) - \sum \text{PV} (\text{Expected Cash inflows}) \]
Best Estimate Liability (BEL) Calculation of BEL

Discounting

BEL at t=0
BEL at t=1

Expected Cash Inflow 2
Expected Cash Inflow 3
Expected Cash Inflow 4
Expected Cash Inflow 5

Expected Cash outflow 2
Expected Cash outflow 3
Expected Cash outflow 4
Expected Cash outflow 5

T = 0
1
2
3
4
5

Contract Boundary

Best Estimate Liability (BEL)
= Σ PV (Expected Cash outflows) – Σ PV (Expected Cash inflows)
Best Estimate Liability
Calculation of BEL

Discounting

BEL at t=0
BEL at t=1
BEL at t=2
Expected Cash Inflow 3
Expected Cash Inflow 4
Expected Cash Inflow 5

T = 0
1
2
3
4
5

Expected Cash outflow 3
Expected Cash outflow 4
Expected Cash outflow 5

Contract Boundary

Best Estimate Liability (BEL)
= \( \Sigma \) PV (Expected Cash outflows) − \( \Sigma \) PV (Expected Cash inflows)
Best Estimate Liability
Calculation of BEL

Best Estimate Liability (BEL)

\[ \text{BEL at } t=0 \]

\[ \text{BEL at } t=1 \]

\[ \text{BEL at } t=2 \]

\[ \text{BEL at } t=3 \]

\[ \text{BEL at } t=4 \]

\[ \ldots \]

**Contract Boundary**

Best Estimate Liability (BEL)
\[ = \sum PV \text{ (Expected Cash outflows)} - \sum PV \text{ (Expected Cash inflows)} \]
Best Estimate Liability
Calculation of expected profit (if total liability = BEL)

1\text{st} policy year

\text{Expected Profit 1} = \text{Cash Inflow} - \text{Cash Outflow} - \text{BEL (1st year)} + \text{BEL (0th year)}

2\text{nd} policy year

\text{Expected Profit 2} = \text{Cash Inflow} - \text{Cash Outflow} - \text{BEL (2nd year)} + \text{BEL (1st year)}

\vdots

N\text{th} policy year

\text{Expected Profit N} = \text{Cash Inflow} - \text{Cash Outflow} - \text{BEL (Nth year)} + \text{BEL (N-1th year)}

- (Change in BEL)
Best Estimate Liability

Calculation of expected profit (if total liability = BEL)

\[
\text{BEL (T }^{\text{th}} \text{ year}) - \text{BEL (T-1 }^{\text{th}} \text{ year)} = \text{BEL (T-1 }^{\text{th}} \text{ year)} \times \text{Interest} + \text{Net Cash Flows to the BEL of the year}
\]

\[
\text{Cash Inflow} - \text{Cash Outflow} = \text{BEL (T }^{\text{th}} \text{ year)} - \text{BEL (T-1 }^{\text{th}} \text{ year)}
\]

From previous slide,

\[
\text{Expected Profit T} = \text{Cash Inflow} - \text{Cash Outflow} = \text{BEL (T }^{\text{th}} \text{ year)} - \text{BEL (T-1 }^{\text{th}} \text{ year)} + \text{BEL (T-1 }^{\text{th}} \text{ year)} = 0
\]
Best Estimate Liability
Calculation of expected profit (if total liability = BEL)

- Small initial best estimate reserve leads to the recognition of all profits at inception.
- BEL results in initial one-off profit, followed expected profits of zero.
- Risk Adjustment (RA) and Contractual Service Margin (CSM) are necessary so that initial one-off profit can be reduced to zero and the profit is recognised to present the fulfilment of the contractual obligations over the coverage period and the uncertainty of BEL over coverage and claims handling periods.
The BEL is the discounted value of all best estimate of cash flows of an insurance contract within the contract boundary. It can be summarised as the following formula:

$$\text{Best Estimate Liability (BEL)} = \sum \text{PV (Expected Cash outflows)} - \sum \text{PV (Expected Cash inflows)}$$

BEL should normally be negative at inception (provided the contracts written are profitable). From an accounting perspective, “a negative BEL” means that there is an asset.

If the liability is the best estimate, all profits are recognised at inception.

CSM and Risk Adjustment (RA) are liability elements that defer profit at inception for release in subsequent periods.

Certain cash flows that cannot be directly attributable to a portfolio of contracts (e.g. product development costs) should not be taken into account in the fulfilment cash flows, and will be recognised in the P&L as incurred.
Block 2:
Time value of money
IFRS Insurance
Maturity level of average insurers and Deloitte opportunity

- Current State (Life Insurers)  - Current State (GI Insurers)  - Target State
Discount rate
Definition of IFRS 17 time value of money

- An entity shall adjust the estimates of future cash flows to reflect the time value of money, and the financial risks associated with those cash flows.
- Discount rates are used to recognize the time value of money when projecting cash flows into the future and determining the value of those cash flows at a given date.
- For example, the value of $1 in 10 years time is generally not the same as $1 today, because $1 received today can be invested to earn interest.
Discount rate
Definition of IFRS 17 time value of money

Discount rates must reflect the time value of money, the characteristics of the cash flows and the liquidity characteristics of the insurance contract;

be consistent with observable current market prices for financial instruments with cash flows whose characteristics are consistent with those of the insurance contract, in terms of, for example:
  • Timing;
  • Currency;
  • Liquidity.

And

exclude the effect of any factors that influence such observable market prices but do not affect the future cash flows of the insurance contract.

**Interpretation**

The requirement to take into account timing implies the use of discount rate curves, rather than a single flat discount rate. It is easier to justify using a zero-coupon yield curve because the appropriate discount rate is used to discount cash flows throughout the projection horizon.
Discount rate
Definition of IFRS 17 time value of money

Estimates of discount rates shall be consistent with other estimates used to measure the insurance contract to **avoid double counting or omissions**.

Discount rate is an easy mean to allow for risk in projected cash flows. Generally, an uplift to discount rates causes a reduction in the value assigned to a contract. However, care must be taken to avoid double-counting of allowance for a risk already included in the probabilities that underpin the undiscounted BEL and the RA.
Discount rate
Definition of IFRS 17 time value of money

IFRS 17 requires cash flows that depend on the return on underlying items to be discounted using rates that reflect that dependence.

e.g. discount rates and bonus cash flows for traditional participating business should be consistent with each other.

That dependence is a relevant factor regardless of whether the dependence arises as a result of contractual terms or because the entity exercises discretion, and regardless of whether the entity holds the underlying items.
Discount rate
How shall discount rates be determined?

- **Discount rates** shall include only **relevant factors**, i.e. factors that arise from the **time value of money**, the characteristics of the **cash flows** and the **liquidity** characteristics of an insurance contract. Such discount rates may **not be directly observable in the market**.

- An entity shall maximize the use of current, applicable, observable inputs and minimize the use of unobservable inputs ... reflect all available evidence, both external and internal, concerning non-market variables as well as observable market data.

- **Exercise judgement** to assess the degree of similarity between the features of the insurance contract being discounted and the features of the instrument for which observable market prices are available and to adjust those prices to reflect the difference between them.

IFRS 17 does **not** prescribe a particular estimation technique for determining discount rates.
Discount rate
How shall discount rates be determined?

Discount rates can be determined “top down” or “bottom up”

**Top-Down Approach**

- Determining **discount rates based on** either the actual portfolio of assets that the entity holds or on a **reference portfolio**.
- **Remove factors not relevant** to the insurance contract (e.g. market risk premiums).
- **Adjust for differences in timing** of cash flows (different durations between assets and liabilities).
- **Does not include** risk of entity’s own non-performance.
- **No need to adjust for remaining differences in liquidity**.

**Bottom-Up Approach**

- **Adjusting risk-free yields to allow for factors relevant** to the insurance contract (e.g. **liquidity** characteristics of the insurance contract relative to the risk-free yields).
Discount rate
How shall discount rates be determined?

Top-Down Approach

Yield curve based upon actual or reference asset portfolio

- Unexpected loss adj.
  - (i.e. loss given default (“LGD”) multiplied by the cumulative probability of default (“PD”))
- Expected loss adj.

Including allowance for unexpected and expected defaults or credit rating migration

Remove factors that are not relevant to the insurance contracts (such as market risk premiums for assets included in the reference portfolio) and adjusts for differences between timing of cash flows between the assets and the cash flows of insurance contracts.

Bottom-Up approach

Risk-free rate

A “risk-free rate” plus a liquidity adjustment based on the characteristics of liability cash flows.

Dependent on:
1. Duration
2. Liquidity
3. Currency of insurance cash flows.

DISCOUNT RATE IFRS 17

(reflecting the cost of liquidating the contract quickly, i.e. the difference between the realisable value of the contract within a short period of time compared to its fair value)
Discount rate
Top down – unexpected losses

Defining unexpected losses in a reference portfolio

Two potential methods for quantifying unexpected credit losses:

- **Cost of downgrade:** assuming rebalancing to target credit rating (e.g. Solvency II matching adjustment)
- **Cost of credit risk capital:** $PV\left(\text{COC factor} \times \text{credit VAR for assets}\right)$
Discount rate
Bottom up – risk-free rate

Requirements in selecting appropriate risk-free rates

No specific guidance on this matter from the IASB, but things that should be considered when selecting a risk-free rate:

- highly liquid – high volume of trades, narrow bid-ask spread
- reliable for measurement – volatility, views of market participants
- have minimal credit risk

Two instruments commonly used to derive risk-free reference rates:

- **Interest rate swaps** (i.e. the yields on the fixed leg of an interest rate swap)
  - Used in Solvency II and MCEV
    - Deep interest rate swap markets, used for hedging interest rate risk in derivatives, counterparty risk reduced through the use of clearing house facilities, large exposure
- **Government bonds**
  - Used in statutory reserving in some markets (e.g. Singapore)
    - These rates are exposed to sovereign risk arising from non-market events such as changes in fiscal or monetary policies driven by the government’s agenda
The concept of illiquidity premiums in assets yields
(or liquidity premiums in asset prices)

- The existence of illiquidity premiums received more attention from insurers during the global financial crisis, when credit spreads were highly volatile. Many observers believe that credit spreads were more volatile than could be explained by changes to expected and unexpected default losses.

- Illiquidity premium captures the influence of factors such as fear and greed in the market (and their impact on supply / demand) at a given point in time.

- Preference for liquid assets increases demand and hence prices for liquid securities versus similar illiquid securities. A high liquidity premium in an asset price creates a lower illiquidity premium in the yield for that asset.
Discount rate

Bottom up – illiquidity premiums

Quantifying illiquidity premiums in asset yields

Research regarding illiquidity premiums has generally focused on the illiquidity of bonds. All methods for calculating illiquidity premiums produce different results because they are approximating an unobservable item. Potential methods include the following:

- **Merton model**: Yield on corporate bond less theoretical yield determined using the Merton model
- **CDS Negative Basis**: Corporate spread on bond less CDS premium in respect of the same issuing entity, maturity, seniority and currency
- **Covered Bond Method**: Covered Bond Index Yield less risk-free reference rate
- **Liquidity Renting**: Determined through a transaction with a bank (can be modelled) using a total return swap
- **Proxy Method**: Using a regression technique to calibrate a formula such as MAX [ 0 , X% * (spread less Y bps) ]
Illiquidity premiums in liabilities

- The Risk Adjustment and use of stochastic projections already allow for non-market and market risks in the fulfillment cash flows themselves, such that only the illiquidity premium in relation to the liability cash flow stream should remain within the policy liability discount rate.

- Allowing for illiquidity premium in the discount rate provides the benefit of reducing asset-liability valuation mismatches, particularly in times of market distress because discount rates and asset yield will fluctuate with a degree of correlation.

- There is no established, commonly accepted, market practice for adjusting for illiquidity differences between financial instruments and insurance liabilities.
Discount rate
Bottom up – illiquidity premiums

Illiquidity premiums in liabilities

- Insurance contracts have varying levels of liquidity thus **multiple illiquidity premiums and discount rates are likely to apply within the same insurer**
- Methods for determining appropriate illiquidity premiums for individual liability portfolios need to be determined by insurers, an example is to study the liability illiquidity by **selecting appropriate assets** from which illiquidity premiums should be determined.
Discount rate
How shall discount rates be determined when observable data is absent?

**Guidance**

*Estimation techniques* taking into account observable inputs should be adopted to determine the *appropriate discount rate* when *observable interest rates are not available*.

**Example**

The entity may need to determine the discount rates applied to *cash flows that are expected beyond the period for which observable market data is available* using the current, observable market yield curve for shorter durations or the market data for different currencies compared to the currency in which the cash flows are denominated.

**Conclusion**

Significant judgment would be required in this instance.
Discount rate
How shall discount rates be determined when observable data is absent?

“Determining discount rates when there is lack of observable data”

- Even though asset prices are quoted, if the market is not active (liquid), then observable prices may not represent fair value, and adjustments to quoted prices may be necessary
- Unobservable inputs should take into consideration that forecasts of unobservable inputs tend to place more weight on long-term estimates

Therefore...

- Risk-free reference rates may be available for long durations
- An assessment should be made as to the depth, liquidity and transparency of the market
- Determine whether the observable inputs can be directly referenced without adjustment
- The point at which observable inputs cannot be directly referenced is often called the “last liquid point” (LLP).
Discount rate
How shall discount rates be determined when observable data is absent?

Consider the following aspects when assessing the LLP:

1. **Current Market Practice**
   - Views of market participants

2. **Quantitative Measures**
   - Analysis of bid-offer spread by duration/tenor
   - Transaction volumes by tenor
   - Contributor Count
   - Quote dispersion by contributor

3. **Impact of Stress Market Conditions**
   - Excess volatility in forward curve
   - Forward rate curve becomes more downward sloping
   - Forward rates drop significantly below the ultimate long term forward level
   - Swap rates drop significantly below longest maturity government bonds of high credit rating
Discount rate
How shall discount rates be determined when observable data is absent?

What do you do after the LLP?

For intervals where there are no (reliable) observed yields, **interpolation and extrapolation methods are needed to complete yield curves.**

The **Smith-Wilson** method was chosen by EIOPA for extrapolating beyond the LLP for **Solvency II**. It fits observed points and converges to an ultimate forward rate (speed of convergence can be controlled via a parameter).
Discount rate
How shall discount rates be determined when observable data is absent?

What do you do after the LLP?

**Straight line interpolation**
Also known as linear on rates. Only requires the yield on LLP and the ultimate yield. Overly simplified and has many undesired effect like non-continuous forwards and non-positive forwards (non-arbitrage free).

**QIS4 Piecewise Constant Forward Rate**
QIS4 specified an approach to derive yield curves from swap rates by assuming constant forward curve between every pair of data points. This approach shows more acceptable behaviour at the long end than the Svensson approach, although the lack smoothness.

**Nelson-Siegel**
Invented by Nelson and Siegel (1987). Require 4 parameters, \( \beta_0 \) as long run levels of interest rate, \( \beta_1 \) as short-term component, \( \beta_2 \) as medium-term component and \( \tau \) as decay factor. Parameters to be fitted via a least-square or similar algorithm.

**Svensson**
Svensson (1994) adds a “second hump” term on Nelson-Siegel model, becoming Nelson-Siegel-Svensson model. However, at the end of 2008, the long-term limit for this model is below 0.5%, substantially less than what most actuaries would consider reasonable.

**Smith-Wilson**
Smith & Wilson (2000) published a model for bond prices using linear combinations of spline functions with long-term yield constraints. This model is attractive from a calibration perspective as well as generating a smooth and reasonable yield curve.
Discount rate
How shall discount rates be determined when observable data is absent?

The Ultimate Forward Rate (UFR) is the expected long-term risk-free reference forward rate to which some extrapolation methods such as the Smith-Wilson method converge over time.

The EIOPA approach for Solvency II resulted a UFR of 4.2% for most markets (Long Term Inflation Rate (2%) + Long Term Real Cash Rate (2.2%) = 4.2%)
Discount rates are used in various reporting bases, including notably market-consistent embedded value (MCEV) and Solvency II, that also start with close to risk-free rates and adjust them to determine the required discount rates. The illustration below compares discount rates under various market consistent reporting bases.

The comparison between IFRS and Solvency II rates can produce different results to the illustration below:
## Discount rate

### Summary

<table>
<thead>
<tr>
<th>Description</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entities are required to discount future cash flows to the valuation date</td>
<td>Companies are familiar with discounting but need to come up with a methodology which could have significant impact on modelling, systems and data.</td>
</tr>
<tr>
<td>Discount rate curves may be determined “top-down” or “bottom-up”.</td>
<td>Should consider whether economic capital and/or risk-based capital methodologies are appropriate for IFRS reporting or a new methodology is needed</td>
</tr>
<tr>
<td>Resulting discount rates reflect the timing, currency and liquidity of the liability</td>
<td>There is added complexity in calculating discount rates for cash flows dependent on the returns of underlying items</td>
</tr>
<tr>
<td>If cash flows depend wholly or partly on the returns of underlying items, the discount rate shall reflect the extent of that dependence</td>
<td></td>
</tr>
</tbody>
</table>
Block 3: Risk adjustment
IFRS Insurance
Maturity level of average insurers and Deloitte opportunity

- Current State (Life Insurers)  - Current State (GI Insurers)  - Target State
Risk adjustment
What is a risk adjustment liability?

- Risk adjustment for non-financial risk (RA) measures the compensation that the entity requires for it to be indifferent/neutral between fulfilling a liability that:
  1. Has a range of possible outcomes arising from non-financial risk; and
  2. Will generate fixed cash flows with the same expected present value as the insurance contracts.
- Risk adjustment is the compensation that the entity requires for bearing uncertainty about the amount and timing of cash flows that arise from non-financial risk
Risk adjustment
What is a risk adjustment liability? (cont’d)

• Risk adjustment reflects:
  a) **diversification of risks** the insurer considers, and
  b) both **favourable and unfavourable outcomes** reflecting the entity’s degree of risk aversion

• The purpose of the risk adjustment is to **measure** the effect of **uncertainty** in the cash flows that arise from the insurance contract.

• Risk adjustment reflects **all non-financial risks** associated with the insurance contracts

• It shall **not** reflect
  – **Financial** risk, as it is included in the estimates of the future cash flows or the discount rate used;
  – Risks that do **not** arise from the insurance contracts (e.g. general operational risk).
Example:

• A cash flow with 50% chance of a $110 outflow and a 50% chance of a $90 outflow in the next year, has an expected value of $100 outflow.

• Similarly, a cash flow with a 50% chance of a $200 outflow and a 50% chance of a $0 outflow in the following year, has an expected value of $100 outflow also.

• However, if an entity would want to cede this cash flow into the market, the price the market is willing to accept would be different for both cash flows, despite having the same expected return.

• Due to the increased variability of the 2nd cash flow, the market will tend to require a higher premium than the 1st cash flow, on top of the expected $100 outflow, in order for them to be willing to take on the liability.
Risk adjustment

Explicit reporting and other requirements

Risk adjustment should be **explicit**

- Separate from estimates of future cash flows and discount rates
- Disclosed separately

Risk adjustment balances for unexpired coverage liability and for the claims liability must be disclosed separately

Disclosure of **confidence level** required irrespective of the technique used to measure the risk adjustment in the balance sheet

Other general observations:

- **Entity-specific** measurement
- Dynamic – unlocked in similar manner to BEL with similar impacts to CSM
Risk adjustment
Techniques & approaches
Risk adjustment techniques & approaches
How do we calculate risk adjustment?

- IFRS 17 does not specify the technique to determine the risk adjustment.

- Three main methods commonly discussed in market today:
  a) Cost of capital
  b) Quantile (e.g. Value at Risk or Conditional Tail Expectation)
  c) Explicit assumption (e.g. factor-based or judgment based on experience studies)
Cost of Capital ("CoC") approach

Principle

- CoC approach determines the capital amount which the entity would expect to hold for bearing the risk and the costs for holding such capital
  - Popular approach, used in SII for risk margin calculation
  - Intuitive – reflects realistic economic cost of risk
  - Reflects estimated cost of holding required capital to meet obligations with high confidence
  - Need to determine capital rate that reflects risk relevant to liability

\[
\text{Risk Adjustment} = \sum_{t=0}^{n} \frac{\text{Capital}_t \times \text{CoC Rate}}{(1 + \text{discount rate}_t)^t}
\]
Cost of Capital approach
Simple example – 5 year liability

- Capital Base – Starting at 100 and grading down over lifetime
- CoC rate = 6%
- Discount rate = 5%

<table>
<thead>
<tr>
<th>t</th>
<th>Capital requirement</th>
<th>Cost of Capital</th>
<th>Discount factor</th>
<th>PV of Cost of Capital</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>100</td>
<td>6.0</td>
<td>0.9524</td>
<td>5.71</td>
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<td>2</td>
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<td>3</td>
<td>60</td>
<td>3.6</td>
<td>0.8638</td>
<td>3.11</td>
</tr>
<tr>
<td>4</td>
<td>40</td>
<td>2.4</td>
<td>0.8227</td>
<td>1.97</td>
</tr>
<tr>
<td>5</td>
<td>20</td>
<td>1.2</td>
<td>0.7835</td>
<td>0.94</td>
</tr>
<tr>
<td>6</td>
<td>0</td>
<td>0.0</td>
<td>0.7462</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>Risk Adjustment</td>
<td></td>
<td></td>
<td>16.09</td>
</tr>
</tbody>
</table>
Cost of Capital approach
Practical considerations

Calculations relatively straightforward, but significant judgement and expertise required to design and implement.

\[ Risk \text{ Adjustment} = \sum_{t=0}^{n} \frac{Capital_t \times CoC \text{ Rate}}{(1 + \text{discount rate}_t)^t} \]

**Component 1 – Capital base**
- What basis? RBC, SII, Economic Capital, or all of the above
- What components? Insurance risk, all risks, in between
- How to project forward? Risk drivers, calibration to actual capital

**Component 2 – CoC rate**
- What is cost of indifference? Shareholder return, 6% (like SII), WACC

**Component 3 – Discount rate**
- Only straightforward component – consistent with BEL
Quantile approach

Principle

Quantile approaches set a margin equal to a selected distribution of probabilities

Confidence level - Value at Risk (“VaR”):

• Derives the margin required such that the probability of the actual liability outcome leading to insolvency is below a specified confidence interval

• Easy to communicate disclosure requirements

• Less intuitive than Cost of Capital approach, but provides a more stable disclosure

Conditional Tail Expectation (“CTE”) or Tail VaR:

• Margin calculated as the probability weighted average of all scenarios in the chosen tail of the distribution less the mean estimate

• Shows expected outcome condition there is a shortfall, a better reflection of extreme losses

• May be more appropriate for distributions that are not statistically normal
Explicit assumptions approach
Key features of this approach

This approach is also known as PAD (Provision for Adverse Deviation).

• Margin associated with individual assumptions
  o For example: 10% of mortality, 5% of lapse

• Possibly easiest to reflect

• Potentially difficult to measure as confidence internal

• Consistent with many current valuation methods

• Computationally intensive
Comparison of approach profiles
Release pattern and confidence levels vary by approach

- Cost of Capital is likely to be higher than VaR for long duration contracts, but will be lower for short duration.
- PADs relationship to other approaches will depend on type of contract, type and level of PADs, and other considerations that inhibit general assessments.
- Steady confidence level can be seen for VaR, but other methods will vary with time.
Risk adjustment
Criteria for suitability
Criteria for suitable risk adjustments

Key accounting requirements

• Despite no restrictions on the technique that is allowed to use for determining the risk adjustment, the risk adjustment shall have the following characteristics:
  – risks with low frequency and high severity will result in higher risk adjustments than risks with high frequency and low severity;
  – for similar risks, contracts with a longer duration will result in higher risk adjustments than contracts with a shorter duration;
  – risks with a wide probability distribution will result in higher risk adjustments than risks with a narrower distribution;
  – the less known about the current estimate and its trend, the higher the risk adjustment; and
  – to the extent that emerging experience reduces uncertainty about the amount and timing of cash flows, risk adjustments will decrease and vice versa.

• The entity shall also consider whether the technique provides concise and informative disclosure so that users of financial statements can benchmark the entity’s performance against the performance of other entities.
Criteria for suitable risk adjustments

Practical considerations

- Diversification effect across portfolio and how to allocate such benefit
- Implications of financials
  - Earning patterns
  - Profitability - relationship to CSM
- Comparison to other bases for risk adjustments/margins
- Group versus local entity diversification
- Systems requirements
- New business calibration
- Reinsurance risk adjustment asset
- Stochastic calculations
Block 4: Contractual Service Margin (CSM)
IFRS Insurance
Maturity level of average insurers and Deloitte opportunity

- Current State (Life Insurers)
- Current State (GI Insurers)
- Target State
Learning objectives

- To define Contractual Service Margin (CSM) in the context of IFRS 17
- To understand the requirements of block 4 – CSM under IFRS 17
- To measure CSM at initial recognition and subsequent measurement
- To discuss level of aggregation, why is it important, and impact to insurers
- To distinguish which cash flows adjusts or do not adjust CSM
- To understand the requirements of modification and derecognition of insurance contracts
- To learn the accounting treatment of onerous contracts and subsequent loss reversal
Contractual Service Margin (CSM)
What is CSM?
The CSM is...

An accounting mechanism for **recognising profit** over the **coverage period** of the contract:

- It represents the expected profit for the insurer as it sells an insurance contract
- Absorbs changes in future cash flow expectations for release over time.
- It is the amount that reduces the initial calculation of the fulfillment cash flows to nil when that calculation produces a positive (asset) amount:
  
  \[ \text{PV of probability-weighted future inflows} \]
  
  \[ - \text{PV of probability-weighted future outflows increased by a risk adjustment liability} \]
  
  \[ - \text{CSM amount at initial recognition} \]
  
  \[ = \text{Nil} \]

- The accounting result is that it defers immediate recognition of profit from the initial recognition of an insurance contract to future periods based on an accounting mechanic that releases the CSM balance over the coverage period stipulated in the contract.
- Potential investor view of profitability – likely to be viewed similarly to “Value In Force”
What is CSM?
At initial recognition

- CSM at initial recognition of an insurance contract should be **an amount that results in no income or expenses**
- This can be more simply paraphrased as the CSM at the point of sale of the contract is equal to the opposite of the BEL plus the risk adjustment.

\[
CSM(t_0) = -BEL(t_0) + \text{Risk Adjustment}(t_0)
\]

**Liability elements**
- BEL = PV of Benefits and Expenses less PV of Premiums

**Asset element**
- RA based on selected approach but always positive/liability*

* For direct business – reinsurance can be negative

---

*BEL = PV of Benefits and Expenses less PV of Premiums*
Definition of CSM
At initial recognition (cont’d)

- Absent any insurance acquisition cash flows the entry that generates the CSM is:
  - Dr Insurance contract liability – BEL  300
  - Cr Insurance contract liability – CSM  250
  - Cr Insurance contract liability – RA  50

- Example when the acquisition cash flows had been paid or received (e.g. $70 of acquisition costs such as medical examination and other directly attributable costs that the insurer would have incurred to assemble the portfolio)
  - Dr Acquisition cost asset  70
  - Cr Cash or accounts payable (based on an incurred cost basis)  70

- Contract initial recognition
  - Dr Insurance contract liability – BEL  370
  - Cr Acquisition cost asset  70
  - Cr Insurance contract liability – CSM  250
  - Cr Insurance contract liability – RA  50
Definition of CSM
At initial recognition (cont’d)

Practical issues of insurance acquisition cash flows

IFRS 17 captures insurance acquisition cash flows to assemble the portfolio rather than restricting them to successfully sold policies. Acquisition costs for unsuccessful sales need to be accumulated in the system to be taken into account in the CSM calculation for the period. E.g.:

• Costs incurred to pay for a call centre staff dedicated to the sale of insurance contracts;
• Underwriting costs incurred for rejected applications
• Costs (income) incurred (received) for insurance contracts cancelled during the cooling off period

Conclusion for implementation planning: new accounting systems in the expense process are needed to avoid this going to P&L and policy administration systems need to capture all contracts when the signing date is earlier than inception
Definition of CSM
At initial recognition (cont’d)

Practical issues from Risk Adjustment and associated diversification benefits

1. **RA is calculated in function of the level of diversification** that the insurer considers in setting its compensation to bear risk. This approach should normally reduce the RA per contract if a portfolio is expanding (greater pooling of risks) and it should increase the RA if the portfolio is contracting.

2. Given that the CSM is calculated after allowing for the RA a mechanism to take into account of the possible fluctuations in the diversification benefits needs to be considered when these fluctuations are not trivial. *E.g. a CSM adjustment could be calculated when the RA is crystallised at a reporting date and the average RA can be allocated to all new contracts issued since the opening date of the same financial period.*

3. The reference to the entity in the setting of the RA based on the compensation to bear risk could create greater diversification benefits at consolidated level than they would be at subsidiary level. *This event would result in a system that tracks two levels of CSM: at subsidiary and group level.*
Contractual Service Margin ("CSM")

<table>
<thead>
<tr>
<th>CSM</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Carrying amount of CSM:</strong></td>
</tr>
<tr>
<td>CSM Period End =</td>
</tr>
<tr>
<td>CSM Period Beginning + CSM of any contracts added to the group (1) + Interest accreted to reflect the time value of money (2) +/- Changes in fulfilment CF (BEL + RA) relating to future services (3) +/- The effect of any currency exchange differences (4) - Amount released to revenue because of the transfer of services in the period (5)</td>
</tr>
</tbody>
</table>

Note:
- Subject to a floor of the CSM of zero (onerous group). Purpose of recognizing a positive initial CSM is to eliminate any day 1 gains (if initial CSM is positive). CSM represents the unearned profit that the entity recognizes as it provides services under the insurance contract.
- Given the contract is onerous, subsequent decrease in FCF (i.e. improvements) should be allocated to the loss component until the component is reduced to zero. Only the excess is allocated to CSM
- If the contract generates cash flows in a foreign currency, an entity shall treat the contract and the CSM as a monetary item
Contractual Service Margin ("CSM")

- CSM cannot be negative, i.e. the present value of losses must be charged immediately to profit or loss.

- An entity should recognise the remaining contractual service margin in profit or loss over the coverage period in a systematic way that best reflects the remaining transfer of the services. For contracts with no participating features, the service represented by the contractual service margin is insurance coverage that:
  - is provided on the basis of the passage of time; and
  - reflects the expected number of contracts in force.

- Risk-adjusted expected profit from a contract (unearned profit in a contract).

- Unlocked for changes to non-market assumptions (within the coverage).

- Interest accretion calculated using locked-in discount rate (non-par and indirect par contracts).

- Contract derecognition triggers release of any remaining CSM balance through change in coverage units.

- Groups of contract must follow specific aggregation requirements. Groups are often referred to as "CSM cohorts" or "CSM units of account".
Contractual Service Margin ("CSM")

<table>
<thead>
<tr>
<th>CSM</th>
</tr>
</thead>
</table>

**CSM for a group of insurance contract is recognised in profit or loss in each accounting period. Hence, an amount of CSM is to be allocated to the respective accounting period.**

- Per para B119: An amount of the CSM for a group of insurance contract is recognised in profit or loss in each period to reflect the services provided under the group of insurance contracts in the period.

  (a) Identifying the coverage units in the group over the current and expected remaining coverage period
  - Coverage units are determined based on quantity of benefits provided by contracts in the group, considering the expected coverage duration of contracts in the group and the likelihood of insured events occurring only to extent that they affect expected duration of contracts in the group.

  (b) Allocating the CSM at the end of the period (before recognising any CSM release 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.
Illustration 1: Non-Participating Protection Term Product Features

Projected Net Cash Flows of the Term Policy

RM 20k premium

Year

Cash Flow

1
2
3
4
5

Payout + Expense
Overview of the Initial and Subsequent Measurement

Assumed to be equal to insurance risk charge under this particular example (Confidence Level equivalent = 75%)

Initial CSM = -(BEL(0) + RA(0))

Present value of future liability cash flows using 4% discount rate

31 December t
31 December t+1
31 December t+2
31 December t+3
31 December t+4
31 December t+5

<table>
<thead>
<tr>
<th>BEL</th>
<th>RA</th>
<th>CSM</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>
The CSM will create an additional new business strain at inception to avoid profit at inception, but will help smoothing the future profit as the CSM will be released.
YEAR 1 - INITIAL STRAIN
First year IFRS 17 profit is lower than its GPV profit, given the CSM acts as an additional buffer of smoothing and creates an additional strain.

YEARS 2 TO 5
Under IFRS 17, the future IFRS profit will be higher under a GPV approach due to the additional release of CSM.

Illustration 1: Non-Participating Protection Term
Profit Signatures: Current GPV vs IFRS 17

Profit before Tax and Cost of Capital under IFRS 17 basis and GPV basis

YEAR 1 - INITIAL STRAIN
First year IFRS 17 profit is lower than its GPV profit, given the CSM acts as an additional buffer of smoothing and creates an additional strain.

YEARS 2 TO 5
Under IFRS 17, the future IFRS profit will be higher under a GPV approach due to the additional release of CSM.
Illustration 2: Non-Participating Endowment Product Features

Projected new business cash flows of the endowment product

<table>
<thead>
<tr>
<th>Projection Year</th>
<th>Premium payment period</th>
<th>Maturity benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
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<tr>
<td>3</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Illustration 2: Non-Participating Endowment

Projected IFRS 17 Balance Sheet

Overview of the Initial and Subsequent Measurement

Initial CSM = -(BEL(0) + RA(0))

Assumed to be equal to insurance risk charge under this particular example (Confidence Level equivalent= 75%)

Present value of future liability cash flows using 4% discount rate

Release in CSM

BEL increase from increase in BEL

Maturity outgo assumed to be paid on 1 January t+11
Illustration 2: Non-Participating Endowment

Profit Signatures: Current GPV vs IFRS 17

Profit before tax and cost of capital under IFRS 17 basis and GPV basis

**YEAR 1- INITIAL STRAIN**
First year IFRS 17 profit is lower than its GPV profit, given the CSM acts as an additional buffer of smoothing and creates an additional strain.

**YEARS 2 TO 11**
Under IFRS 17, the future IFRS profit will be
- Higher under a GPV approach due to the additional release of CSM
- Smoother than under a GPV basis due to the release of CSM from one period to another
# Contractual Service Margin

**Examples 1:**
A group of insurance contracts with 3 years coverage period. The initial CSM computed is 210 and the quantity of benefit in each period is identical. Interest accreted on the CSM assume to be at 0% and no other changes affecting the CSM carrying value over the 3 years coverage period.

<table>
<thead>
<tr>
<th></th>
<th>Initial</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coverage unit</td>
<td>-</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>CSM in profit or loss</td>
<td>-</td>
<td>70</td>
<td>70</td>
<td>70</td>
</tr>
<tr>
<td>CSM in balance sheet</td>
<td>210</td>
<td>140</td>
<td>70</td>
<td>-</td>
</tr>
</tbody>
</table>

- 100/300 (current / (current + remaining) coverage units
- Recognise 1/3 x RM210 CSM in profit or loss

**Examples 2:**
If the coverage period of the insurance contracts down to 2 years, then:

<table>
<thead>
<tr>
<th></th>
<th>Initial</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coverage unit</td>
<td>-</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>CSM in profit or loss</td>
<td>-</td>
<td>105</td>
<td>105</td>
<td>-</td>
</tr>
<tr>
<td>CSM in balance sheet</td>
<td>210</td>
<td>105</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
### Contractual Service Margin

**Examples 3:**
After 2 years, the coverage period is expected to be 4 years in total, 1 year more than expected.

<table>
<thead>
<tr>
<th></th>
<th>Initial</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coverage unit</td>
<td>-</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>CSM in profit or loss</td>
<td>-</td>
<td>70</td>
<td>70</td>
<td>35</td>
<td>35</td>
</tr>
<tr>
<td>CSM in balance sheet</td>
<td>210</td>
<td>140</td>
<td>70</td>
<td>35</td>
<td>-</td>
</tr>
</tbody>
</table>

- 100/200 \(\frac{\text{current}}{\text{current + remaining}}\) coverage units
- Recognise \(\frac{1}{2}\) x RM70 CSM in profit or loss
Building Block Approach – Subsequent Measurement

**Example**

**Year 1:** favourable change in future estimates in BEL and RA
- Contractual Service margin: 200
- Addition: 250

**P/L to be released in:**
- Future periods: 50
- Current period: 0

**Year 2:** unfavourable change in future estimates in BEL and RA
- Contractual Service margin: 250
- Reduction: 160

**P/L to be released in:**
- Future periods: 90
- Current period: 0

**Year 3:** unfavourable change in future estimates in BEL and RA which exceeds the CSM
- Contractual Service margin: 160
- Reduction: 40

**P/L to be released in:**
- Future periods: (40)
- Current period: (40)

Assumption: No interest accretion and amortization of CSM
Building Block Approach – Subsequent Measurement

**CSM Movements**

**Previously recognized losses will not appear in balance sheet.**

**Year 4:** *favourable* change in future estimates in BEL and RA

- P/L to be released in:
  - Future periods: (30)
  - Current period: 0

**Year 5:** *unfavourable* change in future estimates in BEL and RA

- P/L to be released in:
  - Future periods: (10)
  - Current period: (40)

**Year 6:** *favourable* change in future estimates in BEL and RA which exceeds the previously recognized losses

- P/L to be released in:
  - Future periods: (40)
  - Current period: zero

**Addition**

- Future periods: 50
- Current period: 10

**Assumption:** No interest accretion and amortization of CSM

= income

= expense

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Level of aggregation
Level of aggregation
What, where, and why?

What is the issue?
Level of calculation: policy, portfolio, somewhere in between?

Where is the issue?
• BEL – no issue given it is calibrated to the statistical mean
• RA – determined at a different level than CSM with an impact on the calculation
• CSM – groups based on time, risk sensitivity and profitability

Why is it an issue?
• Aggregation of contracts to carry out onerous portfolio testing. Different levels produce materially different outcomes in the P&L

<table>
<thead>
<tr>
<th></th>
<th>CSM</th>
<th>Policy</th>
<th>Aggregate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policy 1</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Policy 2</td>
<td>-100</td>
<td>0</td>
<td>-100</td>
</tr>
</tbody>
</table>

Important Note: policy level calculations would be more straightforward to manage in systems and remain compatible with accounting for units of account that aggregate multiple contracts.
Unit of account
Aggregation of contracts

• A portfolio is a group of contracts subject to similar risks and managed together as a single pool.

• The portfolio is then required to be disaggregated into groups of insurance contracts that at inception are:

  A. Onerous, if any
  B. at initial recognition have no significant possibility of becoming onerous subsequently, if any; and
  C. remaining contracts, if any

• There is decreasing ranking of the risk-adjusted profitability of the groups (B, C, A). B is the highest ranking risk-adjusted profitable group and A is the lowest (A is actually expected to be loss making).

• Further disaggregation of the specified groups is permitted.

• Only contracts issued within the same twelve-month period are permitted to be grouped. Groups for shorter periods are permitted. This period does not need to coincide with the annual reporting period of an entity.

• An entity shall establish the groups at initial recognition, and shall not reassess the composition of the groups subsequently.
Contracts within each product line, such as annuities and whole-life, would be expected to have similar risks, and hence contracts in different product lines would be expected to be in different portfolios.

An entity should assess the risk of the contracts in a group becoming onerous in a manner consistent with how the entity’s internal reporting provides information about changes in estimates such as sensitivity analyses or risk-adjusted profitability analyses.

An entity should assess whether there is no significant risk of the contracts in the group becoming onerous, based on the sensitivity of the fulfilment cash flows to changes in estimates which, if they occurred, would result in the contracts becoming onerous.

An entity may choose to divide the portfolios into more groups if the entity’s internal reporting provides information that distinguishes at a more granular levels of profitability and different risks of contracts becoming onerous.

An entity should allocate the CSM for a group of contracts over the current period and expected remaining coverage to be provided. The allocation shall be based on coverage units, reflecting the expected duration and size of the contracts in the group.
**Unit of account**

**Aggregation of contracts**

<table>
<thead>
<tr>
<th>Groups of Portfolio A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Issue year 1</td>
</tr>
<tr>
<td>Onerous</td>
</tr>
<tr>
<td>No significant</td>
</tr>
<tr>
<td>possibility of</td>
</tr>
<tr>
<td>becoming onerous</td>
</tr>
<tr>
<td>Other</td>
</tr>
<tr>
<td>Profitable</td>
</tr>
<tr>
<td>Similar risk, managed</td>
</tr>
<tr>
<td>together at initial</td>
</tr>
<tr>
<td>recognition</td>
</tr>
<tr>
<td>Subsequent similar</td>
</tr>
<tr>
<td>risk contracts will</td>
</tr>
<tr>
<td>be added</td>
</tr>
</tbody>
</table>

| Issue year 2          |
| Onerous               |
| No significant        |
| possibility of         |
| becoming onerous      |
| Other                 |

| Issue year N          |
| Onerous               |
| No significant        |
| possibility of         |
| becoming onerous      |
| Other                 |

Mutualisation exemption (to be discussed later)

Regulatory exemption (to be discussed later)
Unit of account
Aggregation of contracts – PAA

Groups of Portfolio A

Issue year 1
- Onerous
- No significant possibility of becoming onerous
- Other

Issue year 2
- Onerous
- No significant possibility of becoming onerous
- Other

Issue year N
- Onerous
- No significant possibility of becoming onerous
- Other

Portfolio A

Similar risk, managed together at initial recognition

Subsequent similar risk contracts will be added

PAA exemption (discussed before): based on facts and circumstances

Regulatory exemption (to be discussed later)
Level of aggregation
Exemption for grouping of regulatory-affected pricing of insurance contracts

- If contracts within a portfolio would fall into different groups only because law or regulation specifically constrains the entity’s practical ability to set a different price or level of benefits for policyholders with different characteristics, the entity may include those contracts in the same group.
- When this is the case and the entity included those contracts in the same group it should disclose that fact.
- This exemption should not be extended by analogy to any other regulatory-affected transactions.
Add contracts to a group

Open groups

• To enable an entity to determine whether it can add a contract to the group, it needs to
  a) **assess whether the contract is profitable or onerous, and**
  b) **the risk of the contract becoming onerous after inception.**

• This assessment must be performed at the **individual contract level**

• If the entity has a method that would allow it to determine the outcome of tests a) and b) above without calculating the fulfilment cash flows amount at individual contract level, IFRS 17 allows that method to be used to create the groups (more explanation on this practical expedient later)

Discount rates

• After adding the contracts to an existing group, this may result in a change to the determination of the discount rates at the date of initial recognition

• An entity shall apply the **revised rates** from the start of the reporting period in which the new contracts are added to the group
## Level of aggregation

**Unit of account**

<table>
<thead>
<tr>
<th><strong>IFRS 17 Unit of Account</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Scope</strong></td>
<td>Contract</td>
</tr>
<tr>
<td><strong>Contract Measurement and Derecognition</strong></td>
<td>Contract</td>
</tr>
<tr>
<td><strong>Acquisition Costs</strong></td>
<td>Portfolio</td>
</tr>
<tr>
<td><strong>Contractual Service Margin</strong></td>
<td>Group</td>
</tr>
<tr>
<td><strong>Contractual Service Margin Release</strong></td>
<td>Group</td>
</tr>
<tr>
<td><strong>Risk Adjustment</strong></td>
<td>Up to reporting entity-wide</td>
</tr>
<tr>
<td><strong>Onerous Contract Test</strong></td>
<td>Group</td>
</tr>
<tr>
<td><strong>Disclosures</strong></td>
<td>“...useful information is not obscured...”</td>
</tr>
</tbody>
</table>

**Allocation over the current and expected remaining coverage period, on basis of coverage units, reflecting the expected duration and size of the contracts in the group**
“Mutualisation”

When cash flows from insurance contracts in one group are affected by the cash flows to policyholders of contracts in a different group the unlocking of CSM must take this into account.

Effectively the presence of these features expands the unit of account for CSM unlocking to comprise all the groups being “mutualised”.

---

**Diagram:**

- **Pool of underlying items**
  - Mutualised returns

- **Unit of account for CSM unlocking combines groups 1 and 2**
  - Annual group 1 Policyholders
  - Annual group 2 Policyholders
  - Mutualised returns
Mutualisation (cont’d)
Special cases for the CSM

<table>
<thead>
<tr>
<th>Mutualisation</th>
<th>CSM unlocking</th>
<th>Practical complexity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>At higher level of aggregation</td>
<td>Low; as there are likely existing policies managed on a portfolios basis</td>
</tr>
<tr>
<td>No</td>
<td>At lower level of aggregation</td>
<td>High; as group level is more granular; higher chance for groups to become onerous in subsequent periods</td>
</tr>
</tbody>
</table>

From an IT system’s perspective, the entity will need to flag whether mutualisation is applicable for each group of insurance contracts.

The basis of conclusions clarifies that mutualisation has the same requirement that only contracts issued within 1 year may be grouped.

Annual groups continue to be required to allocate the CSM to P&L using the relevant coverage units.
Level of aggregation
Practical expedient when groups are created

• If an entity can determine the groups without measuring the individual contract, (e.g. based on the information used to establish pricing), an entity may measure a group rather than the individual contracts.

• An entity does not need to calculate the individual contract’s BEL and RA at initial recognition if it can be certain that the resulting groups do not mix contracts with CSM with contracts without CSM (i.e. those that are individually onerous on day 1)

• If an entity does not have a method that achieves this objective it would have to calculate the contract’s BEL and RA on an individual basis in order to determine the groups on day 1

• The prohibition to offset day one gains and losses is a key aspect of IFRS 17
Practical measurement of contracts

- Some cash flows are not directly attributable to groups of contracts, hence such cash flows must be estimated at a higher level and then allocated to groups of contracts.
- Cash flows that are directly attributable to an individual contract can also be estimated at a higher level and then allocated to individual contracts or groups of contracts.
- This is because the expected cash flows from any aggregated group of contracts equals the sum of the expected cash flows of the individual contracts.
Level of aggregation

Conclusion

• An entity should be able to make a **systematic and rational allocation** of the estimate of fulfilment cash flows to groups of contracts at initial recognition and in subsequent periods

**Operational issues**

• Aggregating contracts at a **granular level** may cause operational complexities and result in additional costs. It may also increase the possibility of onerous contracts

• The aggregation of contracts is a key consideration in the planning process for an entity. An entity ideally should **not** revisit the level of aggregation later in the implementation process due to the potential costs and operational issues this may cause
Contractual Service Margin
Subsequent measurement
Subsequent measurement
Progression of CSM from inception

Carrying amount of CSM:

\[
\text{CSM Period End} = \text{CSM Period Beginning} \\
\tag{1} + \text{CSM of any contracts added to the group} \\
\tag{2} + \text{Interest accreted to reflect the time value of money} \\
\tag{3} +/- \text{Changes in fulfilment CF (BEL + RA) relating to future services} \\
\tag{Note} \\
\tag{4} +/- \text{The effect of any currency exchange differences} \\
\tag{5} - \text{Amount released to revenue because of the transfer of services in the period (i.e. amortisation)}
\]

Note:

- Subject to a floor of the CSM of zero (onerous group)
- Given the contract is onerous, subsequent decrease in FCF (i.e. improvements) should be allocated to the loss component until the component is reduced to zero. Only the excess is allocated to CSM
Subsequent measurement
Formula breakdown – CSM unlocking

(1) **CSM of contracts added (covered previously)**

(2) **Interest accretion**
   - Per paragraph B72(b): "to determine the interest to accrete on the CSM... discount rates determined at the date of initial recognition of a group of contracts;" – i.e. the discount rate is locked in at inception
   - May use **weighted-average discount rates** over the period that contracts in the group are issued, which cannot exceed one year

(3) **Changes in fulfilment cash flows** (to be discussed later)

(4) **FX** - If the contract generates cash flows in a foreign currency, an entity shall treat the contract and the CSM as a monetary item
(5) Allocation to P&L (amortisation)

• Per paragraph B119: An amount of the CSM for a group of insurance contracts is recognised in P&L in each period to reflect the services provided under the group of insurance contracts in that period
  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 CSM at the end of the period (before recognising any CSM release in the period) equally to each coverage unit provided in the current period and expected to be provided in the future
  c) recognising in P&L the amount allocated to coverage units provided in the period
Subsequent measurement
Changes in fulfilment cash flows

Changes in fulfilment cash flows that relate to future service would unlock CSM. These changes comprise:

a) experience adjustments arising from premiums received in the period that relate to future service, and related cash flows;

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

c) differences between any investment component expected to become payable in the period and the actual investment component that becomes payable in the period; and

d) changes in RA for non-financial risk that relate to future service.

We will illustrate simple examples on experience adjustments and change in assumptions.
Subsequent measurement
Changes in fulfilment cash flows

Experience adjustments

Why CF's change?

More or less contracts than expected at the end of the period

More

Less

Expected amount of liability release must be **reduced** through P&L to align with **higher** number of contracts at the end of the period.

Expected amount of liability release must be **increased** through P&L to align with **lower** number of contracts at the end of the period.

Normal derecognition rules under IFRS 17 will handle this experience variance.

Different non-financial assumptions

Different financial assumptions

Change in assumptions

Coverage expired?

No

Book against CSM

Yes

Assumptions for claims incurred, so book to P&L

5

1

2

3

4
Case 1: Closing # actual policies > expected policies

For example for a three year contract with 60 policies inforce:
- Expected surrenders of 20 per year
- Actual experience in year 1 is 18, rather than 20
- The extra 2 policies remaining are expected to be surrendered in the following 2 years

<table>
<thead>
<tr>
<th>From Year 0</th>
<th>Year 1</th>
<th>From year 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
<td>Expected opening # policies</td>
<td>Expected # of policies derecognised</td>
</tr>
<tr>
<td>1</td>
<td>60</td>
<td>20</td>
</tr>
<tr>
<td>2</td>
<td>40</td>
<td>20</td>
</tr>
<tr>
<td>3</td>
<td>20</td>
<td>20</td>
</tr>
</tbody>
</table>

Accounting entries
Dr. Insurance contract liability (expected # policies derecognised, BEL+CSM) 20
Cr. Insurance revenue (expected) 20

Derecognition of insurance contracts based on expected

Dr. Insurance revenue
Cr. Insurance contract liability (expected # policies derecognised, BEL+CSM) 2

Reversal of derecognition to reflect actual

There would be other issues that are not illustrated above including:
- Change in coverage unit between beginning and ending of period
- Amount of coverage unit changes in CSM or P&L
### Case 2: Closing # actual policies < expected policies

For example for a three year contract with 60 policies inforce:
- Expected surrenders of 20 per year
- Actual experience in year 1 is 22, rather than 20
- The extra 2 policies recognized will reduce expected derecognition in the following 2 years

| Year | From Year 0 | | Year 1 | | From year 1 | |
|------|-------------|-------------|---------|-------------|----------------|
|      | Expected opening # policies | Expected # of policies derecognised | Expected closing # policies | Actual derecognition | Actual vs Expected | Expected opening # policies | Actual (year 1) & expected (year 2&3) # of policies derecognised | Expected closing # policies |
| 1    | 60          | 20          | 40      | 22          | -2              | 60                | 22                   | 38          |
| 2    | 40          | 20          | 20      |             |                 | 38                | 19                   | 19          |
| 3    | 20          | 20          | 0       |             |                 | 19                | 19                   | 0           |

### Accounting entries

**Dr. Insurance contract liability (expected # policies derecognised, BEL+CSM)**
**Cr. Insurance revenue (expected)**

*Derecognition of insurance contracts based on expected*

**Dr. Insurance contract liability (expected # policies derecognised, BEL+CSM)**
**Cr. Insurance revenue**

*Extra derecognition to reflect actual*

There would be other issues including:
- Change in coverage unit between beginning and ending of period
- Amount of coverage unit changes in CSM or P&L
Journal entries (cont’d)

<table>
<thead>
<tr>
<th></th>
<th>Original</th>
<th>Increase claims assumption (within coverage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BEL</td>
<td>100</td>
<td>110</td>
</tr>
<tr>
<td>RA</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>CSM</td>
<td>30</td>
<td>19</td>
</tr>
<tr>
<td><strong>Total liability</strong></td>
<td>140</td>
<td>140</td>
</tr>
<tr>
<td><strong>P&amp;L impact</strong></td>
<td></td>
<td>0</td>
</tr>
</tbody>
</table>

**Different non-financial assumptions**

Dr. Insurance contract liability for remaining coverage – CSM 11
Cr. Insurance contract liability for remaining coverage – BEL 10
Cr. Insurance contract liability for remaining coverage – RA 1

*Within coverage*

This has no P&L impact to the current period but will reduce future revenues due to less CSM release (coverage units will be smaller)
Journal entries (cont’d)

<table>
<thead>
<tr>
<th></th>
<th>Original</th>
<th>Increase claims assumption (coverage expired)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BEL</td>
<td>100</td>
<td>110</td>
</tr>
<tr>
<td>RA</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>CSM</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total liability</td>
<td>110</td>
<td>121</td>
</tr>
<tr>
<td>P&amp;L impact</td>
<td></td>
<td>-11</td>
</tr>
</tbody>
</table>

Different non-financial assumptions

Dr. Changes in estimates for future claims (P&L) 11
Cr. Insurance contract liability for incurred claims – BEL 10
Cr. Insurance contract liability for incurred claims – RA 1

Coverage expired
Journal entries (cont’d)

<table>
<thead>
<tr>
<th></th>
<th>Original</th>
<th>Increase in discount rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>BEL</td>
<td>100</td>
<td>90</td>
</tr>
<tr>
<td>RA</td>
<td>10</td>
<td>9</td>
</tr>
<tr>
<td>CSM</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td><strong>Total liability</strong></td>
<td><strong>140</strong></td>
<td><strong>129</strong></td>
</tr>
<tr>
<td><strong>P&amp;L/OCI impact</strong></td>
<td></td>
<td><strong>11</strong></td>
</tr>
</tbody>
</table>

**Different financial assumptions**

Dr. Insurance contract liability for remaining coverage – BEL 10
Dr. Insurance contract liability for remaining coverage – RA 1
Cr. Discount rate changes on insurance contract liabilities (P&L or OCI) 11

*Discount rates are re-estimated every period with changes recognised in P&L or OCI depending on the accounting policy choice*
CSM recognition
Cash flow changes that do not change CSM

• The CSM for a group of contracts is not adjusted for an experience adjustment or a change in the present value of future cash flows of the group if they are caused by changes in assumptions that give rise to financial risk
  => changes that are not related to future services

• Change in the liability for incurred claims that arises from claims and expenses incurred in the period

• Changes that trigger an onerous group loss or reverse a loss component

• There are changes in future assumptions that impact future cash flows that will not be offset by changes in CSM, e.g. changes in reinsurer credit default ratings

These changes will flow immediately through P&L
CSM recognition
Cash flow changes that do not change CSM

Changes in market variables
Market variables – variables that can be observed in, or derived directly from, markets (e.g. prices of publicly traded securities and interest rates)
Non-market variables – all other variables (e.g. mortality rates)
  • Market variables will generally give rise to financial risk and non-market variables will generally give rise to non-financial risk

Deloitte’s preliminary guidance
  • Exclude all changes in BEL that are caused by market variables from the CSM unlocking. Instead they would be reported in P&L or split between P&L and OCI
  • For direct participating contracts under the variable fee approach/VFA market variable associated with the underlying items would unlock the CSM because they contribute to the determination of the variable fee
  • For indirect participating contracts the CSM is unlocked for market variables that are part of the formula to determine the discretionary benefits to policyholders when the formula is changed (e.g. a higher or lower discretionary allocation to policyholders is decided following the change in market variables). The other effects caused by market variables will go to P&L or split between P&L and OCI
Estimated future inflation rates
Should inflation be treated as a financial assumption?

Analysis
• The nature of assumptions regarding future inflation is important because only non-financial variables are considered in the unlocking of CSM while financial variables do not unlock the CSM other than for the financial variables associated with the underlying items identified in the VFA
• In all other cases the changes caused by financial variables goes to P&L or OCI based on accounting policy choice

Requirement
• Where inflation assumptions are based on an index of prices or rates or on prices of assets with inflation-linked returns they are assumptions that relate to financial risk
• Where inflation assumptions are based on an entity’s expectation of specific price changes they are not financial assumptions that relate to financial risk
Contractual Service Margin
Modification and derecognition
Modification

Conditions

If the terms of an insurance contract are modified, an entity **shall derecognise the original contract** and **recognise the modified contract** as a new contract, if and only if, **any of** the conditions in (a)–(c) are satisfied:

a) if the modified terms had been included at contract inception:
   i. the modified contract would have been excluded from the scope of IFRS 17;
   ii. an entity would have separated different components from the host insurance contract, resulting in a different insurance contract;
   iii. the modified contract would have had a substantially different contract boundary; or
   iv. the modified contract would have been included in a different group of contracts.

b) the original contract met the definition of a direct participating insurance contract, but the modified contract no longer meets that definition, or vice versa; or

c) the entity applied the PAA to the original contract, but the modifications mean that the contract no longer meets the eligibility criteria for PAA.
Modification
Conditions (cont’d)

• If modification meets none of the conditions above, treat changes in cash flows caused by the modification as changes in estimates of fulfilment cash flows

• The exercise of a right included in the terms of a contract is not a modification. For example the exercise of a guaranteed annuitisation option at the relevant date would not count as a modification of that contract.

• Unless any of the above conditions is met, an entity shall derecognise an insurance contract only when the contract is extinguished (i.e. obligation expired or discharged or cancelled)
Derecognition
Requirements

An entity derecognises an insurance contract from within a group of contracts by applying the following requirements:

a) the fulfilment cash flows allocated to the group are adjusted to eliminate the PV of future cash flows and RA relating to the rights and obligations that have been derecognised from the group;

b) the CSM of the group is adjusted for the change in fulfilment cash flows described in (a)*; and

c) the number of coverage units for expected remaining coverage is adjusted to reflect the coverage units derecognised from the group, and the amount of the CSM recognised in P&L in the period is based on that adjusted number.

* To the extent where CSM cannot be negative and allocation to the loss component
Derecognition
Transfer to third party

When an entity derecognises an insurance contract because it transfers the contract to a third party:

\[ \text{CSM adjustment}^* \quad = \quad \text{The change in the carrying amount resulting from the derecognition (i.e. eliminating related FCF and RA)} \quad - \quad \text{Premium charged by the third party} \]

* To the extent where CSM cannot be negative and allocation to the loss component, or use derivatives to mitigate financial risk
When an entity derecognises an insurance contract because it derecognises an insurance contract and recognises a new contract applying the modification requirements:

- **CSM adjustment***

  The change in the carrying amount resulting from the derecognition (i.e. eliminating related FCF)

  **Premium the entity would have charged for a contract with equivalent terms as the new contract at the date of modification, less any additional premium charged for the modification**

* To the extent where CSM cannot be negative and allocation to the loss component, or use derivatives to mitigate financial risk.
Contractual Service Margin
Example
Calculation of CSM example

Portfolio details

Simple Term life contract (no investment component)
Portfolio of 1,000 contracts issued at beginning of year 1

Year 1 – actual = expected
Year 2 – Less surrenders than expected
Year 3 – Future mortality assumption increased for subsequent years
Year 4 – Discount rate reduced

<table>
<thead>
<tr>
<th>Year</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Key Best Estimate Assumptions</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Investment Return</td>
<td>6.00%</td>
<td>6.00%</td>
<td>6.00%</td>
<td>5.50%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mortality as % of 2001 CSO</td>
<td>75%</td>
<td>75%</td>
<td>80%</td>
<td>80%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual Surrender Rate</td>
<td>5.00%</td>
<td>5.00%</td>
<td>5.00%</td>
<td>5.00%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maintenance per policy</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inflation</td>
<td>3.00%</td>
<td>3.00%</td>
<td>3.00%</td>
<td>3.00%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Portfolio Statistics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Policies</td>
<td>1,000</td>
<td>**</td>
<td>910</td>
<td>**</td>
<td>**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Issue Age</td>
<td>45</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Premium / 1000</td>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Policy Face Amount</td>
<td>50,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

** As expected
Calculation of CSM example

Year 1 – actual = expected

<table>
<thead>
<tr>
<th>Time 0</th>
<th>Time 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Point of Sale</strong></td>
<td><strong>Assumptions</strong></td>
</tr>
<tr>
<td>PV Deaths</td>
<td>4,596,609</td>
</tr>
<tr>
<td>PV Othr Clms/Exps</td>
<td>5,734,497</td>
</tr>
<tr>
<td>PV Premiums</td>
<td>11,750,555</td>
</tr>
<tr>
<td>PV CoC</td>
<td>249,378</td>
</tr>
<tr>
<td>Sum Assured</td>
<td>50,000,000</td>
</tr>
<tr>
<td>PV Sum Assured</td>
<td>570,415,271</td>
</tr>
</tbody>
</table>

**CSM per coverage unit**

| Opening CSM | 1,170,071 |
| + Interest | 35,102 |
| +/- Change in Assumptions | - |
| +/- Experience adjustment (CSM unlocking) | - |
| Amortization | (103,181) |

Closing CSM = 1,101,991

**New CSM per coverage unit**

| Opening CSM | 1,170,071 |
| +/- Experience adjustment (CSM unlocking) | - |

Closing CSM = Opening CSM + all the adjusted items listed above

CSM at inception = -(BEL + RA)

Regular CSM roll forward of interest expense and release of CSM as revenue for the period

CSM per coverage unit = \[ \text{Opening CSM + interest + changes due to assumption + changes due to actual vs expected difference} \] / PV of Sum Assured
## Calculation of CSM example

### Year 2 – Less surrenders than expected

<table>
<thead>
<tr>
<th></th>
<th>Time 1</th>
<th>Time 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Per Previous Period</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PV Deaths</td>
<td>4,630,632</td>
<td>4,661,831</td>
</tr>
<tr>
<td>PV Othr Clms/Exp</td>
<td>4,799,743</td>
<td>4,762,039</td>
</tr>
<tr>
<td>PV Premiums</td>
<td>11,073,071</td>
<td>10,428,796</td>
</tr>
<tr>
<td>PV CoC</td>
<td>251,011</td>
<td>263,655</td>
</tr>
<tr>
<td><strong>Sum Assured</strong></td>
<td>47,401,319</td>
<td>44,928,919</td>
</tr>
<tr>
<td><strong>PV Sum Assured</strong></td>
<td>537,527,730</td>
<td>506,252,243</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Opening</th>
<th>+ Interest</th>
<th>+/- Change in Assumptions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CSM per coverage unit</strong></td>
<td>0.0021675</td>
<td>33,060</td>
<td>-</td>
</tr>
<tr>
<td><strong>BEL</strong></td>
<td>(1,642,697)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>RA</strong></td>
<td>251,011</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CSM</strong></td>
<td>1,101,991</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Liability</strong></td>
<td>(289,695)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**New CSM per coverage unit** 0.0021675

- More actual policies in force hence sum assured is greater than expected from lower surrenders
- CSM per coverage period, should be the same
- Same method as year 1, but includes experience adjustment amount
- Change in BEL + RA due to experience adjustment relating to future service
- Recalculated CSM per coverage unit x SA
- Change in future service due to experience adjustment

Change in BEL + RA due to experience adjustment relating to future service

Recalculated CSM per coverage unit x SA

Total liability
Calculation of CSM example

Year 3 – Deterioration in future mortality expectation

CSM per coverage unit changed due to assumption changed from previous period (was 0.0021675). The coverage unit is now lower given that the insurer will have a more expensive service to deliver due to the mortality deterioration.

Impact to BEL and RA offset by change in CSM – results in no change to total liability and reduction in future profits from lower CSM releases.
Calculation of CSM example

Year 4 – Reduction in discount rate

<table>
<thead>
<tr>
<th></th>
<th>Time 3 Per Previous Period</th>
<th>Time 3 Assumptions</th>
<th>Time 4 Assumptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>PV Deaths</td>
<td>4,950,921</td>
<td>4,981,473</td>
<td>5,350,986</td>
</tr>
<tr>
<td>PV Othr Clms/Expns</td>
<td>4,801,833</td>
<td>4,819,422</td>
<td>5,083,774</td>
</tr>
<tr>
<td>PV Premiums</td>
<td>9,892,188</td>
<td>9,300,689</td>
<td>9,598,954</td>
</tr>
<tr>
<td>PV CoC</td>
<td>262,594</td>
<td>263,020</td>
<td>289,870</td>
</tr>
<tr>
<td>Sum Assured</td>
<td>43,119,639</td>
<td>40,851,581</td>
<td>40,851,581</td>
</tr>
<tr>
<td>PV Sum Assured</td>
<td>480,203,300</td>
<td>451,489,760</td>
<td>467,557,438</td>
</tr>
</tbody>
</table>

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>BEL</td>
<td>(139,434)</td>
<td>500,207</td>
<td>835,805</td>
</tr>
<tr>
<td>RA</td>
<td>262,594</td>
<td>263,020</td>
<td>289,870</td>
</tr>
<tr>
<td>CSM</td>
<td>807,454</td>
<td><strong>758,618</strong></td>
<td><strong>758,618</strong></td>
</tr>
<tr>
<td>Total Liability</td>
<td>930,614</td>
<td>1,521,844</td>
<td>1,884,293</td>
</tr>
</tbody>
</table>

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CSM per coverage unit</td>
<td><strong>0.0017884</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Opening CSM</td>
<td>807,454</td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ Interest</td>
<td>24,224</td>
<td></td>
<td></td>
</tr>
<tr>
<td>+/- Change in Assumptions</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>+/- Experience adjustment (CSM unlocking)</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Amortization</td>
<td>(73,060)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Closing CSM</td>
<td>758,618</td>
<td></td>
<td></td>
</tr>
<tr>
<td>New CSM per coverage unit</td>
<td><strong>0.0017884</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Impact to BEL and RA **NOT** offset by change in CSM – results in no change to the CSM

CSM per coverage unit not impacted since interest rate for CSM locked-in at inception

As determined in previous period

3% of Opening CSM

Zero since Change in assumptions is only from change in discount rate

Recalculated CSM per coverage unit x SA

Final CSM / PV SA with Locked in discount rate
Contractual Service Margin

Onerous contracts and subsequent loss reversal
IFRS Insurance
Maturity level of average insurers and Deloitte opportunity

- Current State (Life Insurers)
- Current State (GI Insurers)
- Target State
CSM recognition
Onerous contracts

Simply put, the CSM is floored at zero:

• At initial inception, if \(-\text{BEL} + \text{RA}\) is positive, CSM = 0 and the value of \(-\text{BEL} + \text{RA}\) is immediately recognised as a loss

• At subsequent measurement, if a change in future cash flow would cause CSM to fall below 0, CSM = 0 and any residual difference not offset is immediately recognised as a loss

• Favourable changes in estimates that arise after losses were previously recognised in P&L should be recognised in P&L to the extent that they reverse losses that relate to coverage and other services in the future

• Before posting a positive CSM, the amount of loss previously recognised should be offset by recognition of a gain. Then, a CSM is booked for the remainder, if any

• The loss that can be reversed is not equal to the original amount and a reduction for CSM amortisation and contract derecognition must be taken into account
CSM recognition
Onerous contracts (cont’d)

Level of aggregation and subsequent loss

• An entity should group contracts to determine whether a loss is recognised for onerous contracts on initial recognition (see previous section on CSM level of aggregation)

• The group of contracts used for measuring the CSM should be the same as the group used for determining when contracts are onerous (see previous section on CSM level of aggregation)

• Change in fulfilment cash flows relating to future coverage or other services should adjust CSM, except to the extent that
  1. Increase in the fulfilment cash flows exceed the carrying amount of CSM, giving rise to an onerous loss; or
  2. Given an onerous contract, decrease in the fulfilment cash flows are allocated to the loss component of liability (see previous section on CSM subsequent measurement)
Calculation of CSM – onerous example
Year 3 – LARGE deterioration in future mortality expectation

Significant increase in mortality assumption – results in large increase in present value of death benefits

<table>
<thead>
<tr>
<th>Time 2 Per Previous Period</th>
<th>Time 2 Assumptions</th>
<th>Time 3 Assumptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSM per coverage unit</td>
<td></td>
<td>CSM per coverage unit capped at 0, given the negative change due to assumption is too great and eats up all positive CSM</td>
</tr>
<tr>
<td>PV Deaths</td>
<td>4,721,087</td>
<td>4,751,813</td>
</tr>
<tr>
<td>PV Oth Clms/Exps</td>
<td>4,822,568</td>
<td>4,860,799</td>
</tr>
<tr>
<td>PV Premiums</td>
<td>10,961,394</td>
<td>9,940,895</td>
</tr>
<tr>
<td>PV CoC</td>
<td>256,880</td>
<td>258,655</td>
</tr>
<tr>
<td>Sum Assured</td>
<td>45,500,000</td>
<td>43,119,639</td>
</tr>
<tr>
<td>PV Sum Assured</td>
<td>512,687,094</td>
<td>482,567,706</td>
</tr>
</tbody>
</table>

| BEL                        | (1,017,699)        | (326,282)          | 4,625,517  |
| RA                         | 256,880            | 258,655            | 334,441    |
| CSM                        | 1,045,978          | 1,077,357          | -          |
| Total Liability            | 285,158            | 1,007,736          | 4,959,958  |

Impact to BEL and RA offset by change in CSM – however, CSM floor of zero causes total liability to increase

Immediate loss would be recognized equal to calculated negative shown here.
Calculation of CSM – onerous example

Year 4 – Improvement of mortality assumption (NO discount rate change)

**Improvement of mortality assumption, resulting to less death benefit expected**

<table>
<thead>
<tr>
<th></th>
<th>Time 3</th>
<th>Time 4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Per Previous Period</td>
<td>New Mortality</td>
</tr>
<tr>
<td>PV Deaths</td>
<td>9,754,335</td>
<td>9,678,292</td>
</tr>
<tr>
<td>PV Othr Clms/Exps</td>
<td>3,588,335</td>
<td>3,569,943</td>
</tr>
<tr>
<td>PV Premiums</td>
<td>8,717,153</td>
<td>8,090,403</td>
</tr>
<tr>
<td>PV CoC</td>
<td>334,441</td>
<td>326,444</td>
</tr>
<tr>
<td>Sum Assured</td>
<td>43,119,639</td>
<td>43,119,639</td>
</tr>
<tr>
<td>PV Sum Assured</td>
<td>423,162,763</td>
<td>477,647,802</td>
</tr>
</tbody>
</table>

**Different because need to offset the loss component at beginning of year before able to build up CSM again**

<table>
<thead>
<tr>
<th></th>
<th>CSM per coverage unit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.0018171</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Opening CSM (loss component)</th>
<th>+/- Change in Assumptions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(3,952,228)</td>
<td>(118,567)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>+/- Experience adjustment (CSM unlocking)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>- Amortization</th>
<th>Recalculated CSM per coverage unit x SA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>73,799</td>
<td>918,279</td>
</tr>
</tbody>
</table>

**New CSM per coverage unit**

|                  | 0.0021651 |

<table>
<thead>
<tr>
<th></th>
<th>Liability exclude loss component</th>
<th>loss component</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1,007,730</td>
<td>3,952,228</td>
</tr>
</tbody>
</table>

**Impact to BEL and RA NOT offset by change in CSM – previous loss recognized as gain before increase to CSM**

For simplicity, we have not allowed for systematic allocation of the change to fulfillment cash flows, interest accrued as well as contract derecognition of between loss component and liability excluding loss component.
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