The Actuarial Society of Hong Kong

# CONTRACTUAL SERVICE MARGIN

## 2017 Insurance IFRS Seminar

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**Session 14**

ACTUARIAL SOCIETY of HONG KONG 香港精算學會

# Contractual Service Margin

## Initial Measurement and Unit of Account

# Contractual Service Margin
## What is CSM?

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

- 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
- Absorbs changes in future cashflow expectations for release over time
- Intended to cover:
  - Coverage for overhead and other unallocated expenses
  - Compensation for originating contracts
  - Compensation for providing ancillary services
  - Compensation for product development
  - Additional returns if the insurer has significant pricing power, or discounts building market power

Current **estimate** of the **profitability** entity expects the contract to generate over the coverage period

Potential investor view of profitability – likely to be viewed similarly to VIF

- An accounting mechanism for recognizing profit over the coverage period of the contract
- It represents the expected profit for the insurer as it sells an insurance contract
- It is the amount that reduces the initial calculation of the fulfilment cash flows to nil when that calculation produces a positive (asset) amount

Present value of probability-weighted future inflows –
Present value of probability-weighted future outflows + a risk adjustment liability –
CSM amount at initial recognition = Nil

# Contractual Service Margin
## Definition of CSM

**At initial recognition**

- From Paragraph 38 of IFRS 17: “an entity shall measure the Contractual Service Margin (CSM) on initial recognition of a group of insurance contracts at **an amount that, unless paragraph 47 (on onerous contracts) applies, results in no income or expenses arising from:**
  - The initial recognition of an amount for the fulfilment cash flows; and
  - The de-recognition at the date of initial recognition of any asset or liability recognized for insurance acquisition cash flows applying paragraph 27; and
  - Any cash flows arising from the contracts in the group at that date”
- 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 (assuming the last two sub-bullets above are zeros)

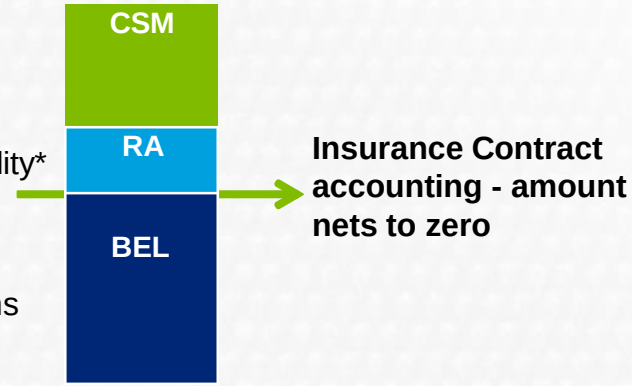
Liability elements

$CSM(t_0) = -BEL(t_0) - \text{Risk Adjustment}(t_0)$

RA based on selected approach but always positive/liability*

Asset element

BEL = PV of Benefits and Expenses less PV of Premiums




** For direct business only. RA for reinsurance can be negative*

# Unit of Account
## What, where and why?

**Definition of a portfolio and a group of insurance 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
  - onerous
  - profitable with **significant risk** of becoming onerous; and
  - other profitable contracts.
- Further disaggregation of the specified groups is permitted into cohorts
- Only contracts issued **within the same year** are permitted to be grouped. Groups for shorter periods are permitted.

| IASB Unit of Account | |
|---|---|
| Scope | Contract |
| Contract Modification and Derecognition | Contract |
| Acquisition Costs | Portfolio |
| Contractual Service Margin | Group |
| Contractual Service Margin Release | Group |
| Risk Adjustment | Up to entity-wide |
| Onerous Contract Test | Group |
| Disclosures | "…useful information is not obscured…" |

**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**

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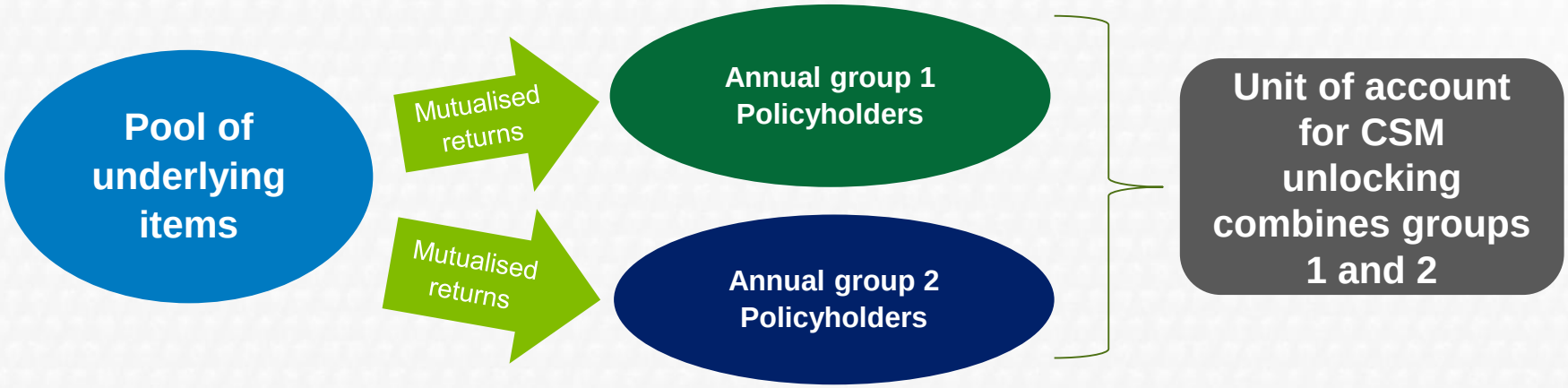
# Level of Aggregation
## IFRS 17 unit of account – Special cases for the CSM

**Premium Allocation Approach (PAA)**

- An entity shall assume no PAA contracts in the portfolio are onerous at initial recognition, unless facts and circumstances indicate otherwise.
- An entity shall assess whether contracts that are not onerous at initial recognition have no significant possibility of becoming onerous subsequently by assessing the likelihood of changes in applicable facts and circumstances.

**“Mutualisation”**

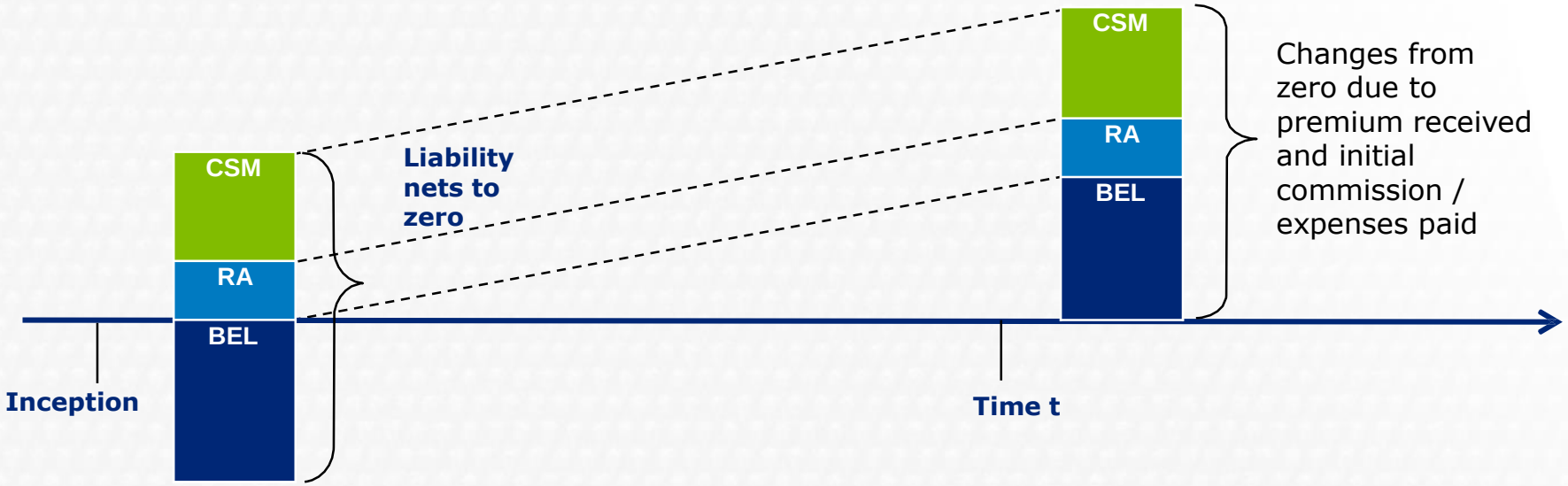
- When cash flows from insurance contracts in one group are affected by the cash flows to policyholders of contracts in a different group the unlocking of CSM must take this into account.
- Effectively the presence of these features expands the unit of account for CSM unlocking to comprise all the groups being “mutualised”



# Contractual Service Margin

Subsequent Measurement - Calculation Sequence, Pattern of Service and Tracking

# Subsequent Measurement
## Progression of CSM after inception




Simplified paraphrasing of paragraph 44 (Iterative Derivation of CSM):

CSM Period End

= CSM Period Beginning

+ Interest accreted

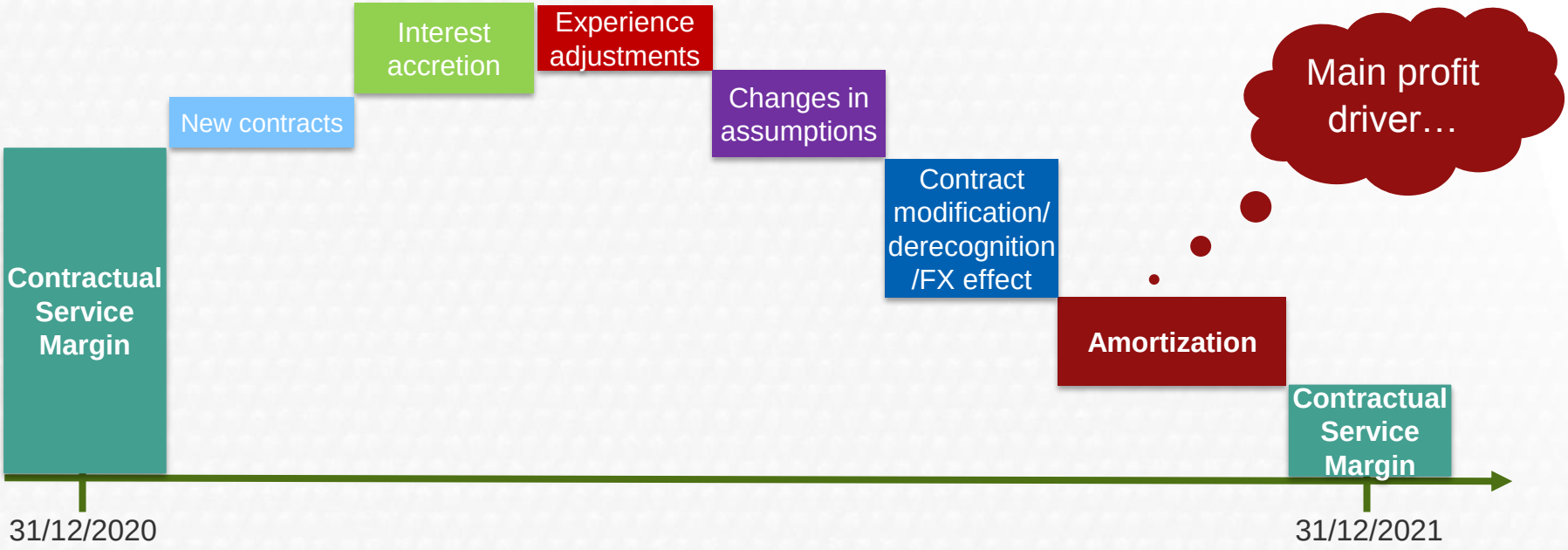
+/- Experience adjustments that relate to future services (i.e. premium received, but not claims incurred)

+/- Change in estimates of the present value of the future fulfilment cash flows (i.e. BEL + RA), subject to a floor of the CSM of zero (unlocking)

- Amount recognised as insurance revenue for services provided over period

# Contractual Service Margin
## Calculation Sequence

**Subsequent measurement**




**The CSM is impacted by experience adjustments that relate to future services, changes of the technical assumptions (when the BBA and Variable Fee Approach, i.e., VFA, are applied) and by changes of the financial assumptions (only when the VFA is applied) that affect the future cash flows of the insurance contracts**

# Subsequent Measurement
## Interest and amortization

**Interest accretion**

- Per paragraph 44(b): “interest accreted on the carrying amount of the contractual service margin during the reporting period, measured at the discount rates specified in paragraph B72(b)” – i.e. the discount rate is locked in at inception*

**Amortization**

- Per paragraph B119: “An amount of the contractual service margin for a group of insurance contracts is recognised in profit or loss in each period to reflect the service provided under the group of insurance contracts in that period. The amount is determined by:

i. 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.

ii. Allocating the contractual service margin at the end of the period (before recognising any amounts in profit or loss to reflect the services provided in the period) equally to each coverage unit provided in the current period and expected to be provided in the future.

iii. Recognising in profit or loss the amount allocated to coverage units provided in that period.

**Summary – the CSM should be amortized in line with a proxy to reflect the service provided**

** Variable Fee business will unlock*

# Subsequent Measurement
## Interest and amortization (cont.)

**Coverage units and Pattern of Service**

- What is an appropriate proxy to reflect the service provided?
- Per B119, it is “determined by considering for each contract the quantity of the benefits provided under a contract and its expected coverage duration”
- The choice of the proxy will determine the amortization pattern
- Examples of potential choices which may vary by products
  - Sum assured
  - Guaranteed return of premium balance
  - Account value
  - Other guaranteed balances

# Subsequent Measurement
## Changes in Experience Adjustments and Future

**The Unlocking of CSM**

| Changes in BEL | Changes in RA |
| --- | --- |
| The CSM is adjusted by the favorable or unfavorable difference between the current and previous estimate of the present value of future cash flows that relate to future coverage and other future services<br><br>For contracts without participating features, an entity should use the locked-in rate at the inception of the contract for accreting interest on the contractual service margin and for calculating the change in present value of expected cash flows that offsets that margin | Differences between the current and previous estimates of the risk adjustment that relate to future coverage and other services should be added to, or deducted from, the contractual service margin |

# Subsequent Measurement
## CSM Tracking

### *Components required for tracking*

- **Per IFRS 17 guidance, the following components need to be tracked in order to roll forward the CSM balance from beginning of the period to end of the period:**
  - Interest accretion
  - Experience adjustments that relate to future services
  - Change in BEL due to unlocking future assumptions
  - Change in RA due to unlocking future assumptions

  } Change in fulfilment cash flows relating to future service

  - Amortization of CSM
    - Proxy for service provided
    - CSM per coverage unit (i.e. an amortization factor)
- **Multiple runs may need to be performed in order to quantify different components**
  - With and without assumption changes
  - With and without experience adjustments that relate to future services
  - In addition, with and without changes in financial assumptions to track OCI vs. Profit/Loss for non-par contracts
- **Other considerations**
  - Effects of assumptions that relate to discretionary changes and those that relate to financial risk
  - New Contracts
  - Contract derecognition/modification
  - Currency exchange

# Calculation of CSM
## Example of subsequent measurement of CSM

### Portfolio details

- Simplified whole life contract
- Portfolio of 1,000 contracts issued
- Issue age is 45 years old
- Premium per 1,000 is 20
- Policy face amount is 50,000

### Assumptions

| Key Best Estimate Assumptions | Time 1 | Time 2 | Time 3 | Time 4 |
|---|---|---|---|---|
| Investment return | 6.0% | 6.0% | 6.0% | 5.5% |
| Mortality as % of 2001 CSO | 75% | 75% | 80% | 80% |
| Annual surrender rate | 5.0% | 5.0% | 5.0% | 5.0% |
| Maintenance per policy | 10 | 10 | 10 | 10 |
| Inflation | 3.0% | 3.0% | 3.0% | 3.0% |

| IFRS | Time 1 | Time 2 | Time 3 | Year 4+ |
|---|---|---|---|---|
| IFRS discount rate | 3.0% | 3.0% | 4.0% | 3.65% |

| Risk Adjustment Calibration | |
|---|---|
| Cost of capital charge | 6.0% |
| Required surplus | |
| % of reserves | 4.0% |
| % of NAAR | 0.3% |

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# Calculation of CSM

## Example 1: actual equals expected and future assumption change in lapses

### Scenario

- Actual = expect
- Future lapse assumption reduced at time 1

| | Time 0 (Point of Sale) | | Time 1 | |
|---|---|---|---|---|
| | Original Lapses | New Lapses | Original Lapses | New Lapses |
| PV deaths | 4,596,609 | 5,459,502 | 4,630,632 | 5,519,412 |
| PV other claims and expenses | (103,949) | 394,853 | (834,646) | (320,880) |
| PV premiums | 11,750,555 | 12,618,340 | 11,073,071 | 11,966,890 |
| PV cost of capital | 129,701 | 174,323 | 140,704 | 185,569 |
| | | | | |
| Sum assured | 50,000,000 | 50,000,000 | 47,401,319 | **47,401,319** |
| PV sum assured | 537,527,730 | **580,916,992** | 506,252,243 | **550,943,183** |
| | | | | |
| Best estimate liability | (7,257,894) | (6,763,985) | **(7,277,085)** | **(6,768,358)** |
| Risk adjustment | 129,701 | 174,323 | **140,704** | **185,569** |
| Opening contractual service margin | 7,128,193 | 6,589,661 | 6,159,855 | 6,250,662 |
| Total liability | - | - | (976,525) | (332,128) |

| Change in contractual service margin | | |
|---|---|---|
| CSM per coverage unit | 0.011345 | [1] opening CSM after interest accretion and assumption changes for the year / PV SA which is (580,916,992 * 1.03) |
| | | |
| Opening CSM | 7,128,193 | [2] original CSM at Time 0 |
| + interest | 213,846 | [3] = [2] x 3% |
| + actual to expect | - | [4] zero impact since actual = expect |
| +/- change in assumption | (553,592) | [5] = Time 1 (BEL+RA) change due to new lapses |
| - amortization | (537,786) | [6] = [1] x (580,916,992 * 1.03 – 550,943,183), or [1] x 47,401,319 |
| Closing CSM | 6,250,662 | [7] = sum of [2] to [6] |
| | | |
| New CSM per coverage unit | 0.011345 | [8] = [7] / PV sum assured (new lapse) at Time 1, which is 550,943,183 |

Note*: [1]=[8] because the allocation of the CSM, which is the amortization calculated in [6], is as of the end of the period (before recognising any amounts in profit or loss to reflect the services provided in the period) per paragraph B119

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# Calculation of CSM

## Example 2: actual equals expected and future assumption change in discount rate

### Scenario

- Actual = expect
- 3% discount rate at time 0; 4% discount rate at time 1

| | Time 0 | Time 1 | |
|---|---|---|---|
| | Point of Sale | 3% Interest | 4% Interest |
| PV deaths | 4,596,609 | 4,630,632 | 3,749,359 |
| PV other claims and expenses | (103,949) | (834,646) | (1,084,359) |
| PV premiums | 11,750,555 | 11,073,071 | 10,131,779 |
| PV cost of capital | 129,701 | 140,704 | 140,704 |
| | | | |
| Sum assured | 50,000,000 | **47,401,319** | 47,401,319 |
| PV sum assured | **537,527,730** | **506,252,243** | 459,187,622 |
| | | | |
| Best estimate liability | (7,257,894) | (7,277,085) | (7,466,778) |
| Risk adjustment | 129,701 | 140,704 | 140,704 |
| Opening contractual service margin | **7,128,193** | 6,713,447 | 6,713,447 |
| Total liability | - | (422,934) | (612,627) |

| Change in contractual service margin | | |
|---|---|---|
| CSM per coverage unit | 0.013261 | [1] opening CSM after interest accretion and assumption changes / PV SA which is 537,527,730 * 1.03 |
| | | |
| Opening CSM | 7,128,193 | [2] original CSM at Time 0 |
| + interest | 213,846 | [3] = [2] x 3% |
| + actual to expect | - | [4] zero impact since actual = expect |
| +/- change in assumption | - | [5] impact on closing (BEL + RA) |
| - amortization | (628,592) | [6] = [1] x (537,527,730 * 1.03 – 506,252,243), or [1] x 47,401,319 |
| Closing CSM | 6,713,447 | [7] = sum of [2] to [6] |
| | | |
| New CSM per coverage unit | 0.013261 | [8] = [7] / PV sum assured (3% Interest) at Time 1, which is 506,252,243 |

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# Contractual Service Margin

Variable Fee Approach for Participating Contracts

# Variable Fee Approach (VFA)
## Conditions for eligibility

1. The contractual terms specify that the **policyholder** participates in a defined share of a clearly identified pool of **underlying items**.

2. The entity expects to pay to the **policyholder** an amount equal to a substantial share of the fair value returns from the **underlying items**; and

   – Unit Linked products: 100% of fund return

   – Participating products: E.g. 90% policyholder fund's surplus

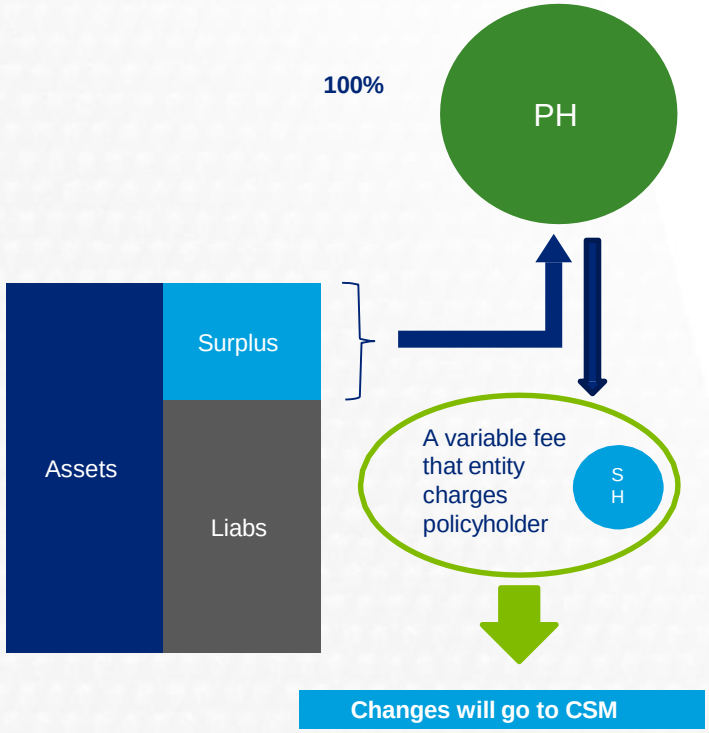
3. A substantial proportion of the cash flows that the entity expects to pay to the **policyholder** should be expected to vary with the change in fair value of the **underlying items**

   – Unit Linked products: Death benefit = Max(Fund Value, Sum Assured)

   – Participating products: Reversionary Bonus, Terminal Bonus

# Variable Fee Approach (VFA)
## Overview

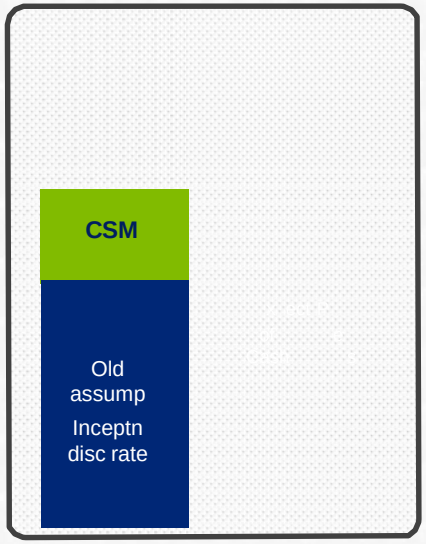
- Modification to the general approach for valuing insurance contracts with payments that vary with return on underlying assets, e.g.
  - Unit-linked (with **insurance** risk)
  - With-profits
- Treats returns on the assets underlying these contracts as part of the fee that the entity charges the policyholder for the services provided
- Per paragraph B104: a variable fee comprises of "**the entity's share of the fair value of the underlying items**" less "**fulfilment cash flows that do not vary based on the returns on underlying items**"
- CSM at inception is the same as general model. CSM subsequently differs from general model:
  - CSM adjusted for financial assumption changes
  - Includes changes to the value of risk mitigation for guarantees, unless these are 'formalized'
  - CSM has interest accretion at current rates
- The CSM under VFA **cannot** be calculated prospectively
- Benefit of VFA is that it eliminates artificial volatility in the Profit & Loss



# Comparison of VFA to BBA
## Changes in asset-dependent CF due to financial component

**In General Measurement model**

- Changes in **fulfilment cash flows relating to future service** are recognized as an **adjustment to the contractual service margin** and affect profit or loss in the period in which the future service is provided.
- Changes in **fulfilment cash flows relating to the financial component** (e.g. changes in discount rate) are recognised in **profit or loss or other comprehensive income** in the period in which the change occurs.
- For products with no participating features:

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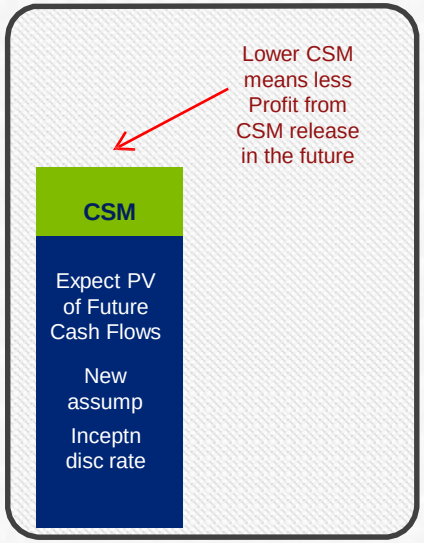
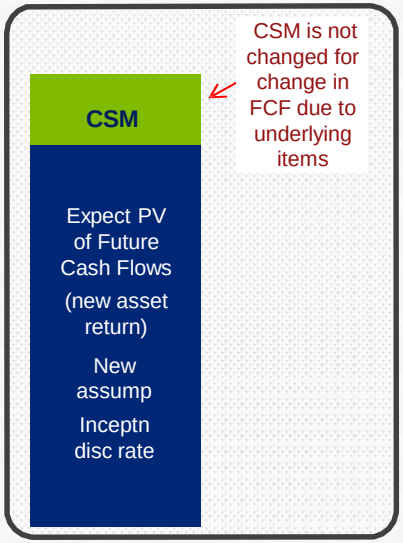
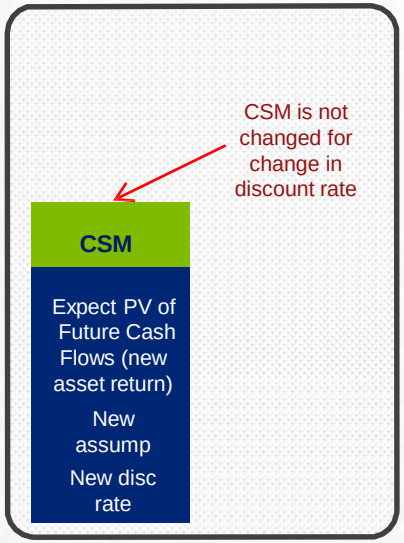



Change in assumptions




Change in Future Cash Flows (FCF) due to change in underlying items

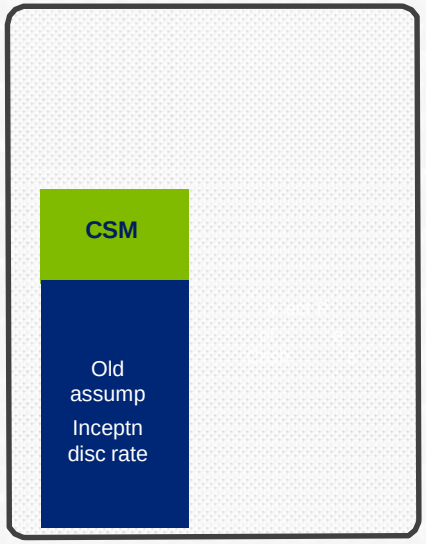



Changes in discount rate

# Comparison of VFA to BBA
## Changes in asset-dependent CF due to financial component

**In Variable Fee model**

- Changes in **estimate of the obligation to pay to the policyholder** an amount equal to the fair value of the underlying items **would be recognised in profit or loss or other comprehensive income**, in the same way changes in the fair value of the underlying items.
- Changes in **estimate of the variable fee for future services** would be accounted for in a way consistent with the **changes in fulfilment cash flows relating to future service**. Such change would be adjusted in CSM.

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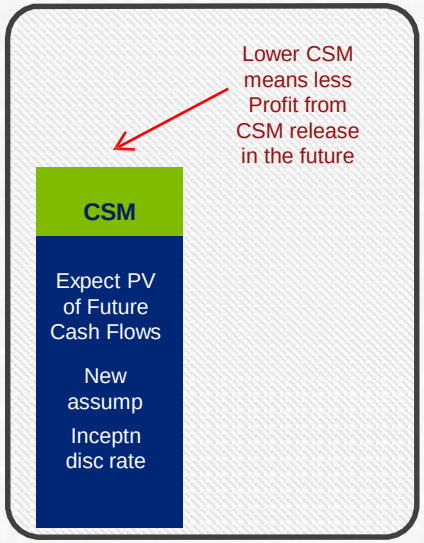
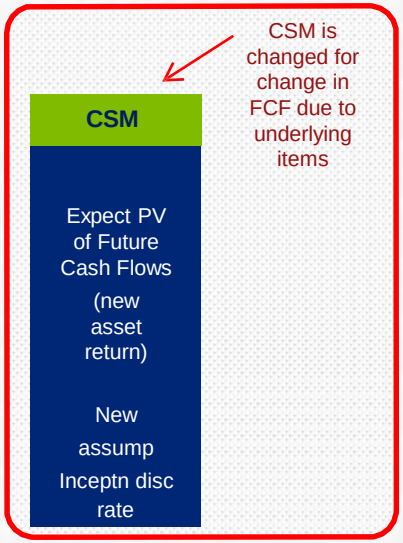
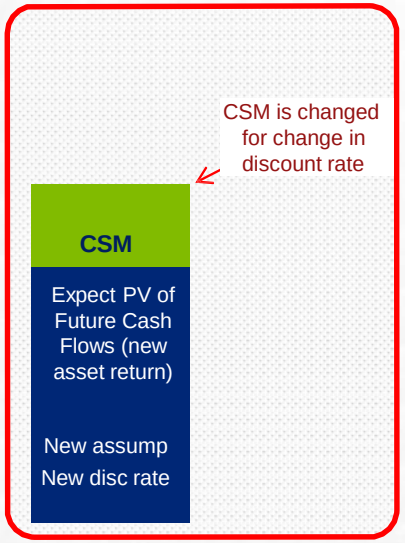



Change in assumptions




Change in Future Cash Flows (FCF) due to change in underlying items




Changes in discount rate

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# Comparison of VFA to BBA
## Interest Rates

| | |
|---|---|
| Discount rates used to determine CSM adjustments | • After initial recognition, the contractual service margin is adjusted for changes in estimates in relation to non-financial assumptions (e.g. mortality)<br>• In the general measurement model, the discount rates used in the BEL and RA calculations to determine CSM adjustments are **locked in at inception of the contract**.<br>• In the variable fee approach, the discount rates used in the BEL and RA calculations to determine CSM adjustments are implicitly the **current interest rate.** |
| CSM interest rate accretion | • After initial recognition, interest is accreted on the contractual service margin.<br>• In the general measurement model, the interest is accreted using **the rate locked in at inception of the contract.**<br>• In the variable fee approach, the interest is implicitly accreted in the change in variable fee, using the **current interest rate.** |

# Impact of Risk Mitigation on CSM
## Derivatives – Direct Par VFA

**Recall**

**VFA:** requires to **adjust CSM** for the effect of **changes in financial risk** on an insurance contract (unless the change relates to the underlying items)

BBA: requires to recognise those changes in the statement of comprehensive income (P&L or choose OCI option)

**Issue**

Consequently, applying the VFA to insurance contracts could create **accounting mismatches** (between such contracts and derivatives used to mitigate financial risk) because:

- IFRS 9 *Financial Instruments* requires entities to measure **derivatives** at fair value with changes recognized in profit or loss **(FVTPL)**
- Under VFA, **changes in FCF resulting from financial risk** should be recognised against **CSM**

Such accounting mismatch is not present in the BBA

# Impact of Risk Mitigation on CSM
## Derivatives – Direct Par VFA

**Solution**

Per paragraph B115: An entity "may choose **not to recognise a change in the contractual service margin** to reflect some or all of the changes in the effect of financial risk on the entity's share of the underlying items or the fulfilment cash flows".

Per paragraph B116: "an entity must have a previously documented risk-management objective and strategy for using derivatives to mitigate financial risk arising from the insurance contracts and, in applying that objective and strategy:

a) the entity uses a **derivative to mitigate the financial risk** arising from the insurance contracts.

b) an **economic offset exists** between the insurance contracts and the derivative; and

c) credit risk does not dominate the economic offset

Per paragraph B118: "if any of the conditions in paragraph B116 ceases to be met, an entity shall:

a) cease to apply paragraph B115 from that date; and

b) not make any adjustment for changes previously recognized in profit or loss"

The IASB extended this provision from specified financial risks related to embedded options and guarantees to **all financial risks**, including changes in the entity's share in the underlying items

The availability of the provision is only on a **prospective basis** on transition

# Contractual Service Margin

## Indirect Participating Contracts

# Indirect Participating Contracts
## The Effect of Discretion

**Quick note on cash flow changes that do not change CSM**

- The effect of discretion applies to participating contracts **which do not meet the definition of direct participating contracts** (to which the variable fee approach should be applied).
- A change in discretionary cash flows is regarded as relating to future service, and accordingly adjusts the CSM

**Discretionary cash flows specifications**

- To determine how to identify discretionary cash flows, an entity shall specify at the inception of the contract:
  - What basis it regards as its commitment under the contract for the payments that it expects to continue with regardless of changes in assumptions that give rise to financial risk and
  - What it regards as discretionary
- Use the definition above to determine if changes in assumptions give rise to financial risk, (do not adjust CSM), or discretionary changes (adjust CSM)
- If the entity cannot specify the above, it shall regard its commitment to be the return implicit in the estimate of the fulfilment cash flows at the inception of the contract, updated to reflect current assumptions that give rise to financial risk

# Indirect Participating Contracts
## The Effect of Discretion (cont.)

**Interpretation**

- For indirect participating contracts the IASB decision is more closely aligned to the **variable fee approach**, because the changes related to **discretion** (indirect profit sharing) are **adjusted through CSM**.
- The **discretion** is effectively the basis the insurers will use to set the asset dependent cash flows. For example, an insurer may give 95% of an investment to its policyholders as a target return. Another example could be the insurer targeting a spread on the return from assets.
- The presence of **guaranteed returns** complicates the definition of discretion. There is no definitive view on this. Changes in the BEL related to cash flows for such guarantees may be considered as “changes related to market variables”.

# Indirect Participating Contracts
## The Effect of Discretion (cont.)

**Market variables vs. discretion**

- The approach for indirect participating contracts will provide further information due to the required **split between market variables and discretion**.
- Given that the effect of **market variables on discretion will flow to P&L**, the accounting volatility between the assets and the indirect insurance contracts will be reduced.
- For example, consider a universal life contract with a minimum guaranteed rate of return:
  - Changes on the expected levels of **discretionary bonuses will adjust the CSM** while all other changes caused by market variables will be accounted for in P&L or OCI in line with the presentation of the effects of the discount rate.
  - If the investment returns drop below the minimum guaranteed rate of return, the CSM is reduced to zero; and discretion is no longer applicable for the insurer.