

IFRS 17
A More Diagnostic Insurance Accounting
>> Credit Insurance P&L Illustration

IFG International Conference 2023
September 20, 2023

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Credit Insurance Simplifying Assumptions

- *Products are credit insurance*
- *Three decrements at work are credit default due to **death** of debtor, credit default due to **non-death problem** of debtor, and loan being **paid-off***
- *Premium payment period is the same as analysis/accounting period*

Change in With-RA Future Claims Liability

>> Policy Level Notation and Definition (1)

- *To increase reserving probability of adequacy to a certain level, **risk adjustment (RA)** is added to without-RA (best estimate) future claims liability to get with-RA future claims liability*
- *RA of the liability is set as difference between liability calculated using with-RA parameters and that calculated using without-RA parameters*
- *RAB = future claims liability RA at beginning of period*
- *RAE = future claims liability RA at end of period*
- *VB = without-RA future claims liability at beginning of period*
- *VE = without-RA future claims liability at end of period*
- *CB = credit benefit, equal to loan balance, paid when credit becomes default due to debtor's death or non-death problem (paid at end of period)*

Change in With-RA Future Claims Liability

>> Policy Level Notation and Definition (2)

- *PB = pay-off benefit, paid when loan is paid off (paid at end of period)*
- *qd = without-RA probability of death in period*
- *qn = without-RA probability of non-death problem in period*
- *qp = without-RA probability of loan paid-off in period*
- *i = without-RA reserving interest rate in period*
- *P = premium income (received at beginning of period)*
- *AEA = without-RA attributable expense allowance (paid at beginning of period)*

Change in With-RA Future Claims Liability

>> Portfolio Level Formula (1)

- Change in with-RA future claims liability of total portfolio is then:

$$\sum_{\text{all policies}} P_j$$

$$- \sum_{\text{all policies}} AEA_j$$

$$+ \sum_{\text{all policies}} (VB_j + P_j - AEA_j) * i$$

$$- \sum_{\text{all policies}} (CB_j - VE_j) * qd_j$$

$$- \sum_{\text{all policies}} (CB_j - VE_j) * qn_j$$

$$- \sum_{\text{all policies}} (PB_j - VE_j) * qp_j$$

$$- \sum_{\text{all "non-surviving (due to death)" policies}} VE_j$$

$$- \sum_{\text{all "non-surviving (due to non-death problem)" policies}} VE_j$$

$$- \sum_{\text{all "non-surviving (due to loan paid-off)" policies}} VE_j$$

$$+ \sum_{\text{all "surviving" policies}} RAE_j$$

$$- \sum_{\text{all policies}} RAB_j$$

Change in With-RA Future Claims Liability

>> Portfolio Level Formula (2)

- *In words, change in with-RA future claims liability of total portfolio is then:*
 - total of premium incomes*
 - *total of without-RA attributable expense allowances*
 - + *total of without-RA reserving interests*
 - *total of without-RA death costs*
 - *total of without-RA non-death problem costs*
 - *total of without-RA loan paid-off costs*
 - *total of without-RA reserves released on death*
 - *total of without-RA reserves released on non-death problem*
 - *total without-RA reserves released on loan paid-off*
 - + *total of RAs of all “surviving” policies at end of period*
 - *total of RAs of all policies at beginning of period*

Profit and Loss Statement – Current Format (1)

Revenue

- Total of premium incomes
- Investment income associated with assets backing up equity, incurred claims liability, and RA part of future claims liability
- Investment income associated with without-RA future claims liability

Expense

- Actual total of attributable expenses
- **Actual total of non-attributable expenses**
- Actual total of death claims
- Actual total of non-death problem claims
- Actual total of loan paid-off claims
- Change in incurred claims liability
- **Change in with-RA future claims liability**

Profit and Loss Statement – Current Format (2)

Revenue	Expense
<ul style="list-style-type: none"> • Total of premium incomes • Investment income associated with assets backing up equity, incurred claims liability, and RA part of future claims liability • Investment income associated with without-RA future claims liability 	<ul style="list-style-type: none"> • Actual total of attributable expenses • Actual total of non-attributable expenses • Actual total of death claims • Actual total of non-death problem claims • Actual total of loan paid-off claims • Change in incurred claims liability • Total of premium incomes <ul style="list-style-type: none"> – Total of without-RA attributable expense allowances + Total of without-RA reserving interests – Total of without-RA death costs – Total of without-RA non-death problem costs – Total of without-RA loan paid-off costs – Total of without-RA reserves released on death – Total of without-RA reserves released on non-death problem – Total of without-RA reserves released on loan paid-off + Total of RAs of all “surviving” policies at end of period – Total of RAs of all policies at beginning of period

Profit and Loss Statement - Rearrangement (1)

Revenue	Expense
<ul style="list-style-type: none"> • Total of premium incomes (canceled out) • – Total of premium incomes (canceled out) + Total of without-RA attributable expense allowances + Total of without-RA death costs + Total of without-RA non-death problem costs + Total of without-RA loan paid-off costs + Total of without-RA reserves released on death + Total of without-RA reserves released on non-death problem + Total of without-RA reserves released on loan paid-off – Total of RAs of all “surviving” policies at end of period + Total of RAs of all policies at beginning of period • Investment income associated with assets backing up equity, incurred claims liability, and RA part of future claims liability • Investment income associated with without-RA future claims liability 	<ul style="list-style-type: none"> • Actual total of attributable expenses • Actual total of non-attributable expenses • Actual total of death claims • Actual total of non-death problem claims • Actual total of loan paid-off claims • Change in incurred claims liability • Total of without-RA reserving interests

Profit and Loss Statement - Rearrangement (2)

Revenue	Expense
<ul style="list-style-type: none">• <i>Total of without-RA attributable expense allowances</i>• <i>(Total of without-RA death costs + Total of without-RA reserves released on death)</i>• <i>(Total of without-RA non-death problem costs + Total of without-RA reserves released on non-death problem)</i>• <i>(Total of without-RA loan paid-off costs + Total of without-RA reserves released on loan paid-off)</i>• <i>(Total of RAs of all policies at beginning of period – Total of RAs of all “surviving” policies at end of period)</i>• <i>Investment income associated with assets backing up equity, incurred claims liability, and RA part of future claims liability</i>• <i>Investment income associated with without-RA future claims liability</i>	<ul style="list-style-type: none">• <i>Actual total of attributable expenses</i>• <i>Actual total of non-attributable expenses</i>• <i>Actual total of death claims</i>• <i>Actual total of non-death problem claims</i>• <i>Actual total of loan paid-off claims</i>• <i>Change in incurred claims liability</i>• <i>Total of without-RA reserving interests</i>

Profit and Loss Statement - Rearrangement (3)

Revenue	Expense
<ul style="list-style-type: none"><i>Expected total of attributable expenses</i><i>Expected total of death claims</i><i>Expected total of non-death problem claims</i><i>Expected total of loan paid-off claims</i><i>Total of RAs released</i> <ul style="list-style-type: none"><i>Investment income associated with assets backing up equity, incurred claims liability, and RA part of future claims liability</i><i>Investment income associated with without-RA future claims liability</i>	<ul style="list-style-type: none"><i>Actual total of attributable expenses</i><i>Actual total of death claims</i><i>Actual total of non-death problem claims</i><i>Actual total of loan paid-off claims</i><i>Change in incurred claims liability</i> <ul style="list-style-type: none"><i>Total of without-RA reserving interests</i> <ul style="list-style-type: none"><i>Actual total of non-attributable expenses</i>

Profit and Loss Statement – IFRS 17 Format

	<i>Revenue</i>	<i>Expense</i>	<i>Result</i>
<i>Insurance service</i>	<ul style="list-style-type: none"> <i>Expected total of attributable expenses</i> <i>Expected total of death claims</i> <i>Expected total of non-death problem claims</i> <i>Expected total of loan paid-off claims</i> <i>Total of RAs released</i> 	<ul style="list-style-type: none"> <i>Actual total of attributable expenses</i> <i>Actual total of death claims</i> <i>Actual total of non-death problem claims</i> <i>Actual total of loan paid-off claims</i> <i>Change in incurred claims liability</i> 	<i>Insurance service result</i>
<i>Investment & finance</i>	<ul style="list-style-type: none"> <i>Investment income associated with assets backing up equity, incurred claims liability, and RA part of future claims liability</i> <i>Investment income associated with without-RA future claims liability</i> 	<ul style="list-style-type: none"> <i>Total of without-RA reserving interests</i> 	<i>Investment result</i>
<i>Others</i>		<ul style="list-style-type: none"> <i>Actual total of non-attributable expenses</i> 	<i>Other result</i>

New Business, Contractual Service Margin and Loss Component **>> Policy Level Formula**

- *In the case of new business, because opening balance of with-RA future claims liability **in the first analysis/accounting period** is effectively equal to 0, change in with-RA future claims liability in this first period can then be expressed on policy level as:*

$$(VE + RAE) - 0 = ((VE + RAE) - (VB + RAB)) + (VB + RAB)$$

- *If $(VB + RAB) < 0$, then $-(VB + RAB)$ is called **Contractual Service Margin (CSM)**, and the policy is characterized as **profitable***
- *If $(VB + RAB) > 0$, then $(VB + RAB)$ is called **Loss Component (LC)**, and the policy is characterized as **onerous***

New Business, Contractual Service Margin and Loss Component

>> Portfolio Level Formula (1)

- Change in with-RA future claims liability of total portfolio **in the first analysis/accounting period** is then:

$$\begin{aligned}
 & \sum_{\text{all policies}} P_j \\
 & - \sum_{\text{all policies}} AEA_j \\
 & + \sum_{\text{all policies}} (VB_j + P_j - AEA_j) * i \\
 & - \sum_{\text{all policies}} (CB_j - VE_j) * qd_j \\
 & - \sum_{\text{all policies}} (CB_j - VE_j) * qn_j \\
 & - \sum_{\text{all policies}} (PB_j - VE_j) * qp_j \\
 & - \sum_{\text{all "non-surviving (due to death)" policies}} VE_j \\
 & - \sum_{\text{all "non-surviving (due to non-death problem)" policies}} VE_j \\
 & - \sum_{\text{all "non-surviving (due to loan paid-off)" policies}} VE_j \\
 & + \sum_{\text{all "surviving" policies}} RAE_j \\
 & - \sum_{\text{all policies}} RAB_j \\
 & - \sum_{\text{all profitable policies}} CSM_j \\
 & + \sum_{\text{all onerous policies}} LC_j
 \end{aligned}$$

New Business, Contractual Service Margin and Loss Component

>> Portfolio Level Formula (2)

- *In words, change in with-RA future claims liability of total portfolio **in the first analysis/accounting period** is then:*

total of premium incomes

– total of without-RA attributable expense allowances

+ total of without-RA reserving interests

– total of without-RA death costs

– total of without-RA non-death problem costs

– total of without-RA loan paid-off costs

– total of without-RA reserves released on death

– total of without-RA reserves released on non-death problem

– total of without-RA reserves released on loan paid-off

+ total of RAs of all “surviving” policies at end of period

– total of RAs of all policies at beginning of period

– total of CSMs

+ total of LCs

Profit and Loss Statement– Current Format– First Period– Without CSM Amortization (1)

<i>Revenue</i>	<i>Expense</i>
<ul style="list-style-type: none">• <i>Total of premium incomes</i>• <i>Investment income associated with assets backing up equity, incurred claims liability, and RA part of future claims liability</i>• <i>Investment income associated with without-RA future claims liability</i>	<ul style="list-style-type: none">• <i>Actual total of attributable expenses</i>• <i>Actual total of non-attributable expenses</i>• <i>Actual total of death claims</i>• <i>Actual total of non-death problem claims</i>• <i>Actual total of loan paid-off claims</i>• <i>Change in incurred claims liability</i>• <i>Change in with-RA future claims liability</i>

Profit and Loss Statement – Current Format – First Period – Without CSM Amortization (2)

Revenue	Expense
<ul style="list-style-type: none"> • Total of premium incomes • Investment income associated with assets backing up equity, incurred claims liability, and RA part of future claims liability • Investment income associated with without-RA future claims liability 	<ul style="list-style-type: none"> • Actual total of attributable expenses • Actual total of non-attributable expenses • Actual total of death claims • Actual total of non-death problem claims • Actual total of loan paid-off claims • Change in incurred claims liability • Total of premium incomes <ul style="list-style-type: none"> – Total of without-RA attributable expense allowances + Total of without-RA reserving interests – Total of without-RA death costs – Total of without-RA non-death problem costs – Total of without-RA loan paid-off costs – Total of without-RA reserves released on death – Total of without-RA reserves released on non-death problem – Total of without-RA reserves released on loan paid-off + Total of RAs of all “surviving” policies at end of period – Total of RAs of all policies at beginning of period – Total of CSMs + Total of LCs

Profit and Loss Statement– Rearrangement– First Period– Without CSM Amortization (1)

Revenue	Expense
<ul style="list-style-type: none"> • Total of premium incomes (canceled out) • – Total of premium incomes (canceled out) + Total of without-RA attributable expense allowances + Total of without-RA death costs + Total of without-RA non-death problem costs + Total of without-RA loan paid-off costs + Total of without-RA reserves released on death + Total of without-RA reserves released on non-death problem + Total of without-RA reserves released on loan paid-off – Total of RAs of all “surviving” policies at end of period + Total of RAs of all policies at beginning of period + Total of CSMs – Total of LCs • Investment income associated with assets backing up equity, incurred claims liability, and RA part of future claims liability • Investment income associated with without-RA future claims liability 	<ul style="list-style-type: none"> • Actual total of attributable expenses • Actual total of non-attributable expenses • Actual total of death claims • Actual total of non-death problem claims • Actual total of loan paid-off claims • Change in incurred claims liability • Total of without-RA reserving interests

Profit and Loss Statement– Rearrangement– First Period– Without CSM Amortization (2)

Revenue	Expense
<ul style="list-style-type: none"> • Total of without-RA attributable expense allowances • (Total of without-RA death costs + Total of without-RA reserves released on death) • (Total of without-RA non-death problem costs + Total of without-RA reserves released on non-death problem) • (Total of without-RA loan paid-off costs + Total of without-RA reserves released on loan paid-off) • (Total of RAs of all policies at beginning of period – Total of RAs of all “surviving” policies at end of period) • Total of CSMs • – Total of LCs • Investment income associated with assets backing up equity, incurred claims liability, and RA part of future claims liability • Investment income associated with without-RA future claims liability 	<ul style="list-style-type: none"> • Actual total of attributable expenses • Actual total of non-attributable expenses • Actual total of death claims • Actual total of non-death problem claims • Actual total of loan paid-off claims • Change in incurred claims liability • Total of without-RA reserving interests

Profit and Loss Statement– Rearrangement– First Period– Without CSM Amortization (3)

Revenue	Expense
<ul style="list-style-type: none"> • <i>Expected total of attributable expenses</i> • <i>Expected total of death claims</i> • <i>Expected total of non-death problem claims</i> • <i>Expected total of loan paid-off claims</i> • <i>Total of RAs released</i> • <i>Total of CSMs</i> • <i>Investment income associated with assets backing up equity, incurred claims liability, and RA part of future claims liability</i> • <i>Investment income associated with without-RA future claims liability</i> • <i>– Total of LCs</i> 	<ul style="list-style-type: none"> • <i>Actual total of attributable expenses</i> • <i>Actual total of death claims</i> • <i>Actual total of non-death problem claims</i> • <i>Actual total of loan paid-off claims</i> • <i>Change in incurred claims liability</i> • <i>Total of without-RA reserving interests</i> • <i>Actual total of non-attributable expenses</i>

Profit and Loss Statement – IFRS 17 Format – First Period – Without CSM Amortization

	Revenue	Expense	Result
Insurance service	<ul style="list-style-type: none"> • Expected total of attributable expenses • Expected total of death claims • Expected total of non-death problem claims • Expected total of loan paid-off claims • Total of RAs released • Total of CSMs 	<ul style="list-style-type: none"> • Actual total of attributable expenses • Actual total of death claims • Actual total of non-death problem claims • Actual total of loan paid-off claims • Change in incurred claims liability 	Insurance service result
Investment & finance	<ul style="list-style-type: none"> • Investment income associated with assets backing up equity, incurred claims liability, and RA part of future claims liability • Investment income associated with without-RA future claims liability 	<ul style="list-style-type: none"> • Total of without-RA reserving interests 	Investment result
Others	<ul style="list-style-type: none"> • – Total of LCs 	<ul style="list-style-type: none"> • Actual total of non-attributable expenses 	Other result

CSM Amortization

- *To stabilize and smooth company's profit emergence, IFRS 17 requires **total of CSMs** to be amortized throughout policy contract periods, separately from movements of with-RA future claims liability, with their gradual releases/amortizations included in **Revenue** of the **Insurance Service part** of the profit and loss statement*
- *This amortization requirement of **total of CSMs** stops full release of up-front profits/new business margins which typically occur in existing gross premium valuation accounting, and basically spreads the present value margins evenly to policy contract periods*

Profit and Loss Statement – IFRS 17 Format – First Period – With CSM Amortization

	Revenue	Expense	Result
Insurance service	<ul style="list-style-type: none"> Expected total of attributable expenses Expected total of death claims Expected total of non-death problem claims Expected total of loan paid-off claims Total of RAs released First Amortization of Total of CSMs 	<ul style="list-style-type: none"> Actual total of attributable expenses Actual total of death claims Actual total of non-death problem claims Actual total of loan paid-off claims Change in incurred claims liability 	Insurance service result
Investment & finance	<ul style="list-style-type: none"> Investment income associated with assets backing up equity, incurred claims liability, and RA part of future claims liability Investment income associated with without-RA future claims liability 	<ul style="list-style-type: none"> Total of without-RA reserving interests 	Investment result
Others	<ul style="list-style-type: none"> – Total of LCs 	<ul style="list-style-type: none"> Actual total of non-attributable expenses 	Other result

Profit and Loss Statement – IFRS 17 Format – Other Period – With CSM Amortization

	Revenue	Expense	Result
Insurance service	<ul style="list-style-type: none"> • Expected total of attributable expenses • Expected total of death claims • Expected total of non-death problem claims • Expected total of loan paid-off claims • Total of RAs released • Amortization of Total of CSMs 	<ul style="list-style-type: none"> • Actual total of attributable expenses • Actual total of death claims • Actual total of non-death problem claims • Actual total of loan paid-off claims • Change in incurred claims liability 	Insurance service result
Investment & finance	<ul style="list-style-type: none"> • Investment income associated with assets backing up equity, incurred claims liability, and RA part of future claims liability • Investment income associated with without-RA future claims liability 	<ul style="list-style-type: none"> • Total of without-RA reserving interests 	Investment result
Others		<ul style="list-style-type: none"> • Actual total of non-attributable expenses 	Other result

Thank You