

INSURANCE RESERVES CALCULATION UNDER REGULATION 781-P

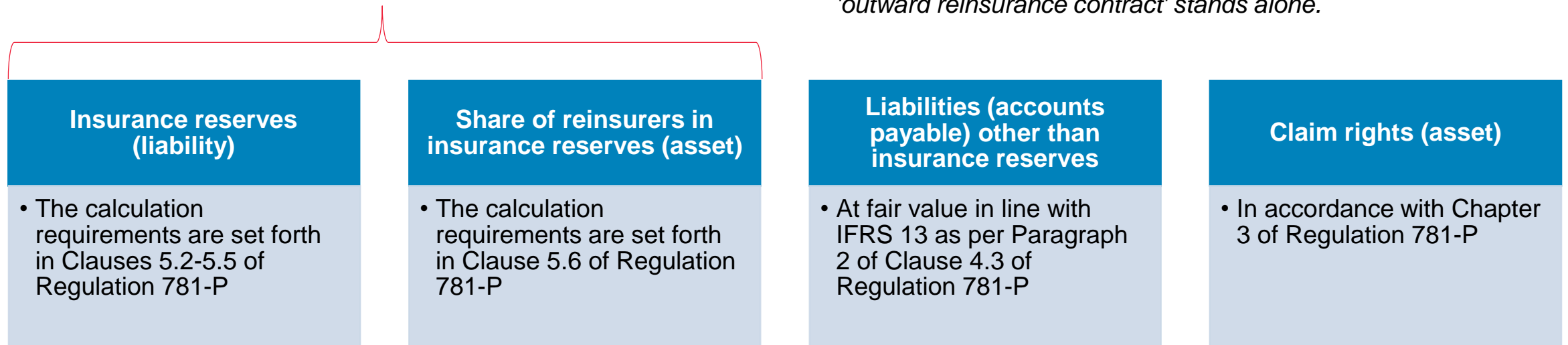
2023



Assets and liabilities under insurance contracts* and outward reinsurance contracts

The focus of this presentation

** Hereinafter the term 'insurance contract' refers to contracts of insurance, co-insurance, and inward reinsurance. The term 'outward reinsurance contract' stands alone.*



- ✓ Insurance and outward reinsurance contracts are defined by the Civil Code of the Russian Federation.
- ✓ The share of reinsurers in insurance reserves constitutes an asset.
- ✓ All assets related to bankrupt reinsurers are to be nullified.



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GENERAL PRINCIPLES

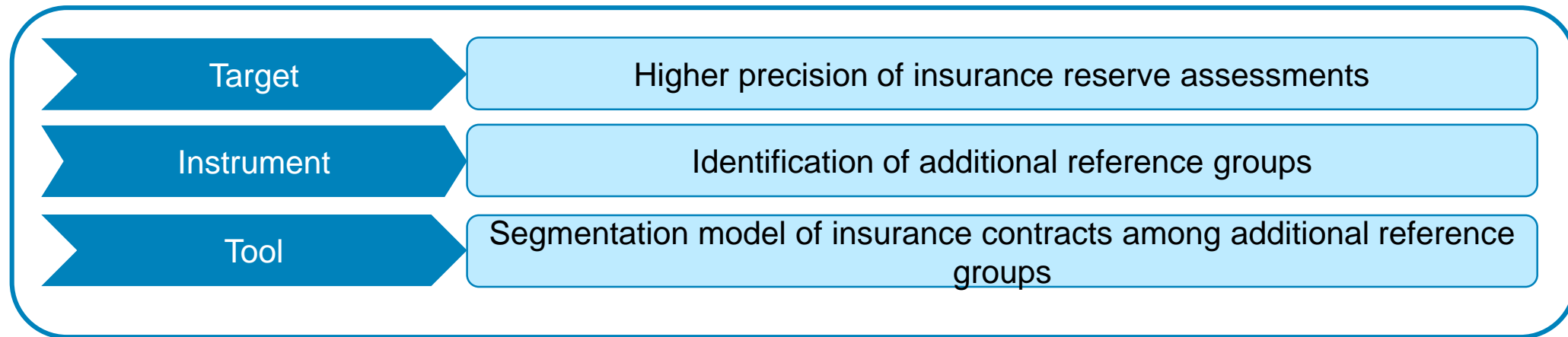
General principles of insurance reserves calculation

- ✓ Reserves are calculated by evaluating future cash flows from insurance contracts + The time value of money is considered (flows are discounted).
- ✓ In the cash flow forecast, insurer's cash outflows are marked with "+", while cash inflows are marked with "-".
- ✓ Reserves assessment is presented within a fixed set of reference groups - this is necessary for subsequent use in determining capital requirements to cover insurance risk (the Solvency II approach has not yet been implemented in Regulation 781-P, it is planned for the next step).
- ✓ Reserves cannot turn negative. Non-negativity is required at the level of reference groups for different types of reserves.
- ✓ Expenses are not capitalised → deferred acquisition costs and deferred reinsurance expense are not feasible.
- ✓ Events occurring after the reporting date are not counted.
- ✓ The payment period in the cash flow forecast cannot exceed one year, i.e. flows can be projected annually, quarterly, or with less frequency based on the best estimate.

Allocation of insurance contracts across reference groups

- ✓ Reference groups are established for life and non-life insurance.
 - ✓ Model of reference groups segmentation (**non-life only**) → allows for the creation of additional reference groups based on this model to calculate any type of reserves, except for the stabilisation reserve.
- ✓ The merger of reference groups is not permitted.
- ✓ Complex insurance contracts that contain multiple risks associated with different reference groups must be distributed among the appropriate reference groups based on the risks.

Model of reference groups segmentation

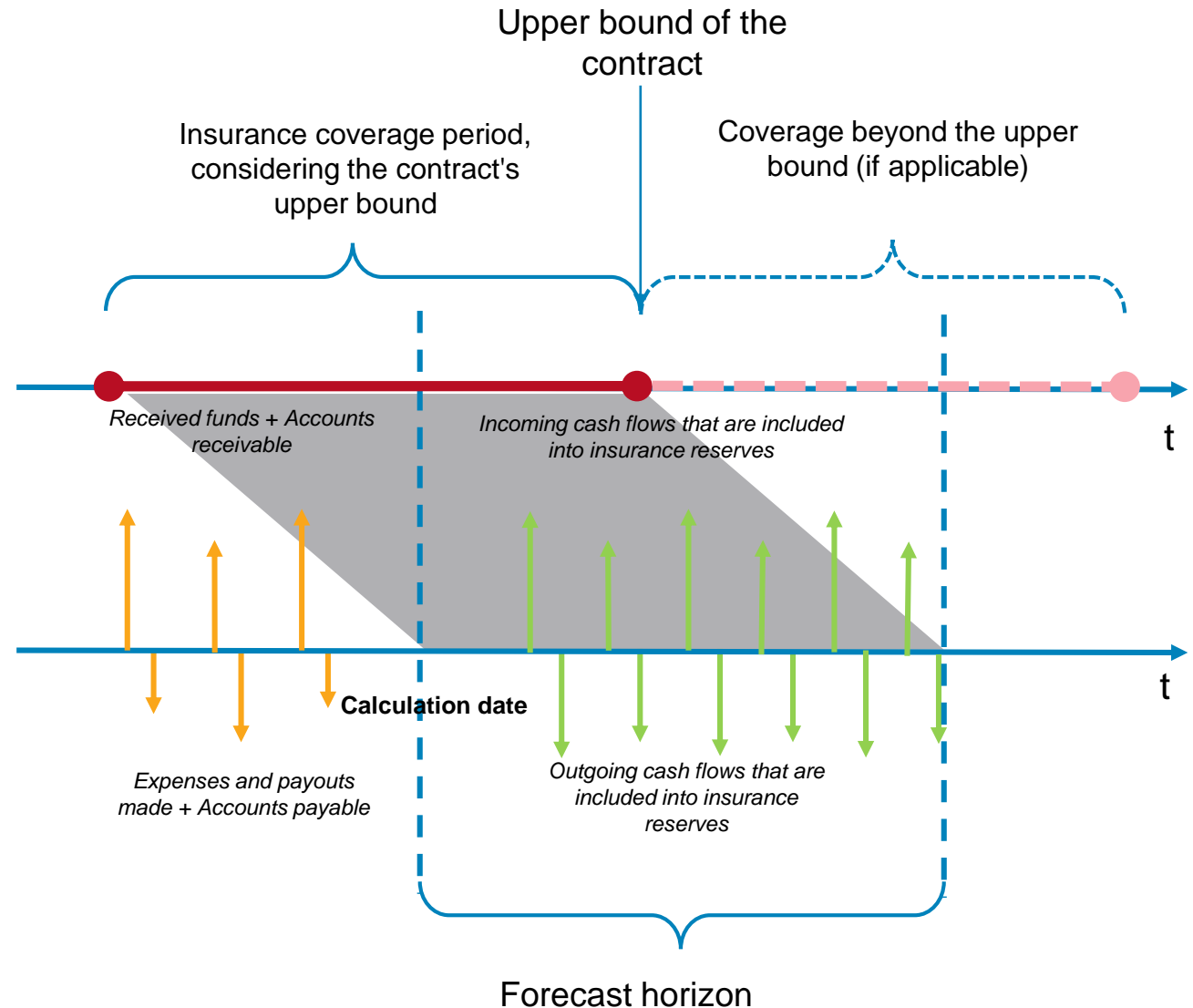


How and when does the model work?

1. The model is **calibrated** using the insurer's statistics, excluding the most recent 12 months.
 2. The model is **tested** using data from the past 12 months: at the end of 3 out of 4 quarters, the calculation of **DPU^F** (loss reserve according to the formula without considering the risk margin) for the additional reference group should result in a positive run-off.
- ✓ All identified additional reference groups must meet the requirements.

Bounds of insurance contract

- ✓ The contract is **recognised** in reserves from the earliest of the dates:
 - ✓ start date of insurance coverage;
 - ✓ date of contract.
- ✓ The contract is **derecognised** when no further cash flows are anticipated.
 - ✓ for insurance claims, it refers to the date when all obligations are fully met.
 - ✓ for premiums, it refers to the upper bound of the contract.
- ✓ **Upper bound** of the contract refers to the end date of the period during which the contract terms are set and cannot be altered by the insurer, and:
 - ✓ If the insurer has the unilateral right to terminate or modify the contract at any time → it refers to the insurance coverage end date.
 - ✓ If the insurer only has this right on specific dates and not any date → it refers to the earliest of these dates.



Time value of money

- ✓ All insurance reserves are computed on a discounted basis.
- ✓ The discount rate (SD_m) is established on the reporting date for each payment m according to its term (GP_m) as follows:
 - For rubles, yuan - zero-coupon yield curve (RK) as per the Moscow Exchange and China Central Depository and Clearing Co., Ltd. respectively.
 - For currencies other than yuan and rubles - US treasury zero-coupon yield curve is used
 - $f = 2$ pps is added to the rate on the curve for all currencies except for rubles
 - D_{min}, D_{max} - minimum and maximum dates when the interest rate (BRS) is defined
 - $V_- (V_+)$ – maximum (minimum) term for which the curve's value is known, not surpassing (surpassing) GP_m
 - The discount rate is capped by the corresponding curve's 10-day average value (BRS_m^{av})

$$SD_m = \min(BRS_m, BRS_m^{av}) + f$$

$$BRS_m = \begin{cases} RK_{D_{min}}, & \text{if } GP_m \leq D_{min} \\ RK_{V_-} + \frac{GP_m - V_-}{V_+ - V_-} \times (RK_{V_+} - RK_{V_-}), & \text{if } D_{min} < GP_m < D_{max} \\ RK_{D_{max}}, & \text{если } GP_m \geq D_{max} \end{cases}$$

Spot rates, that is, if a payment has a 2-year term, the rate for the first year is 3%, for the second year - 5%, then the discount ratio for the payment = $1 / 1.05^2$, not $1 / (1.03 * 1.05)$

* US Treasury_curve https://home.treasury.gov/resource-center/data-chart-center/interest-rates/TextView?type=daily_treasury_yield_curve

Particulars of consideration of time value of money

Inflow

Flow date is set

- ✓ Discounting against this date.
- ✓ Example: receiving a premium according to the payment schedule (a specific date for the incoming cash flow is set).

Flow date is not set

- ✓ Discount on a quarterly basis (non-life) / monthly basis (life).
- ✓ Example: receiving subrogations.
- ✓ It is assumed that the incoming cash flow arrives **at the end** of the relevant quarter (month) it pertains to.
- ✓ The duration of the first cash flow begins at $t = 1/4$ (non-life) / $t = 1/12$ (life).

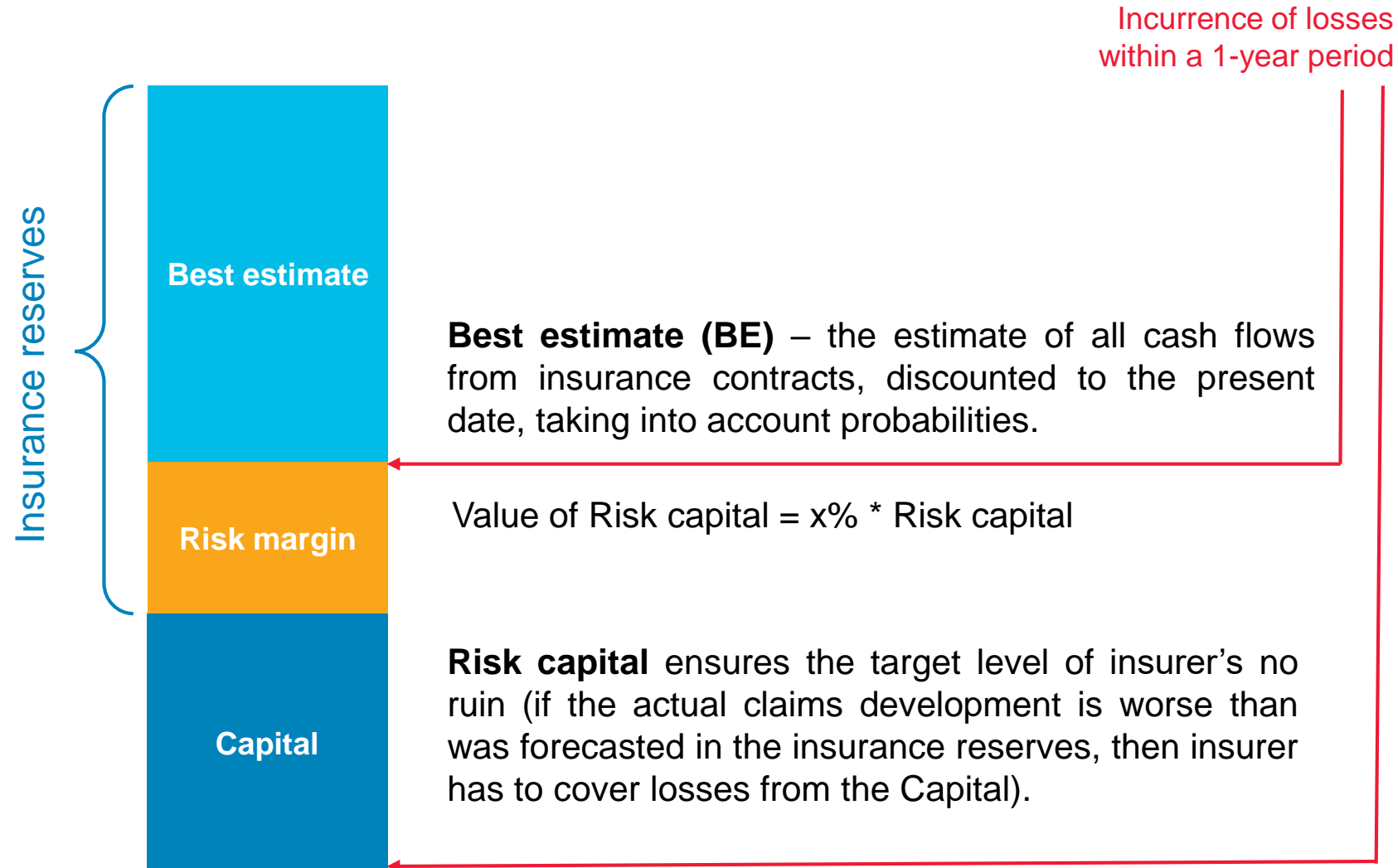
Outflow

Flow date is set

- ✓ Discounting against this date.
- ✓ Example: a survival benefit payment on a specified date (a specific date for the cash outflow is fixed).

Flow date is not set

- ✓ Discount on a quarterly basis (non-life) / monthly basis (life).
- ✓ Example: an insurance payout.
- ✓ It is considered that the cash outflow arrives **at the start** of the relevant quarter (or month) it pertains to.
- ✓ The duration of the first cash flow commences from the point $t = 0$.

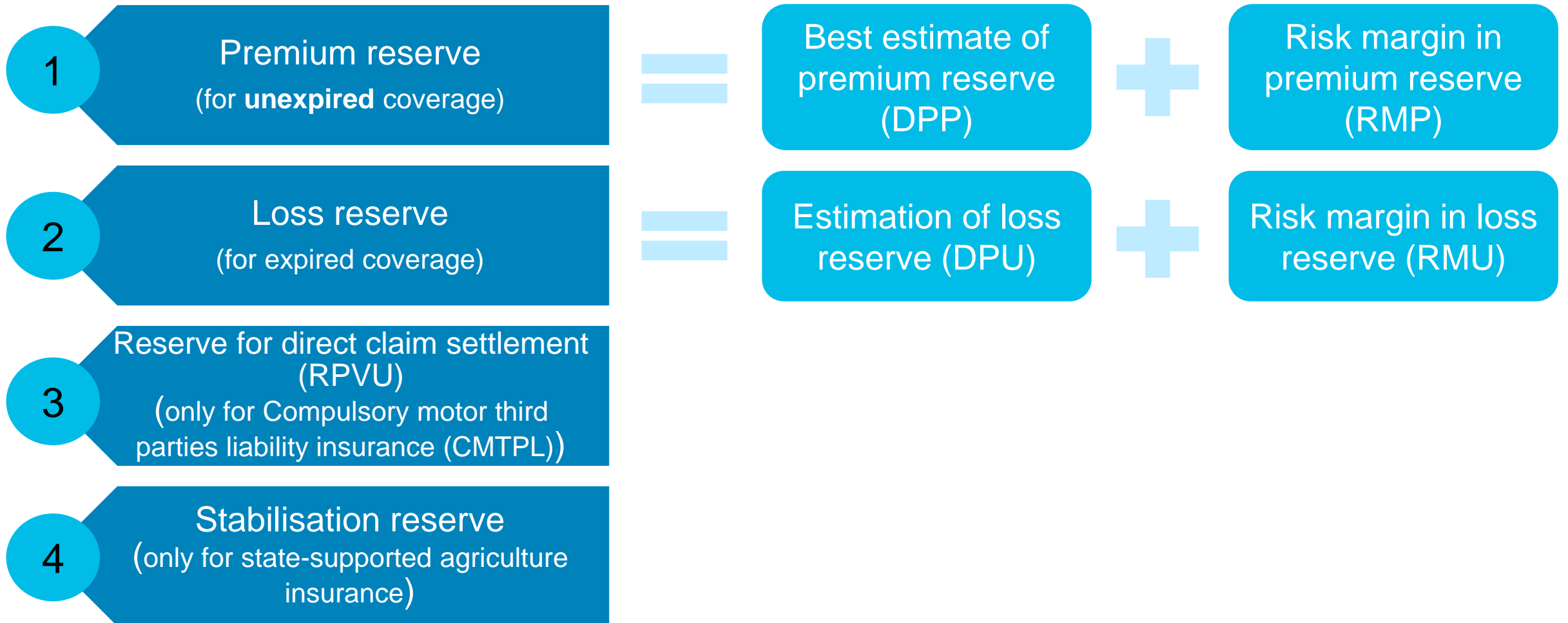




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NON-LIFE INSURANCE

Categories of insurance reserves



Basic principles for calculating non-life insurance reserves

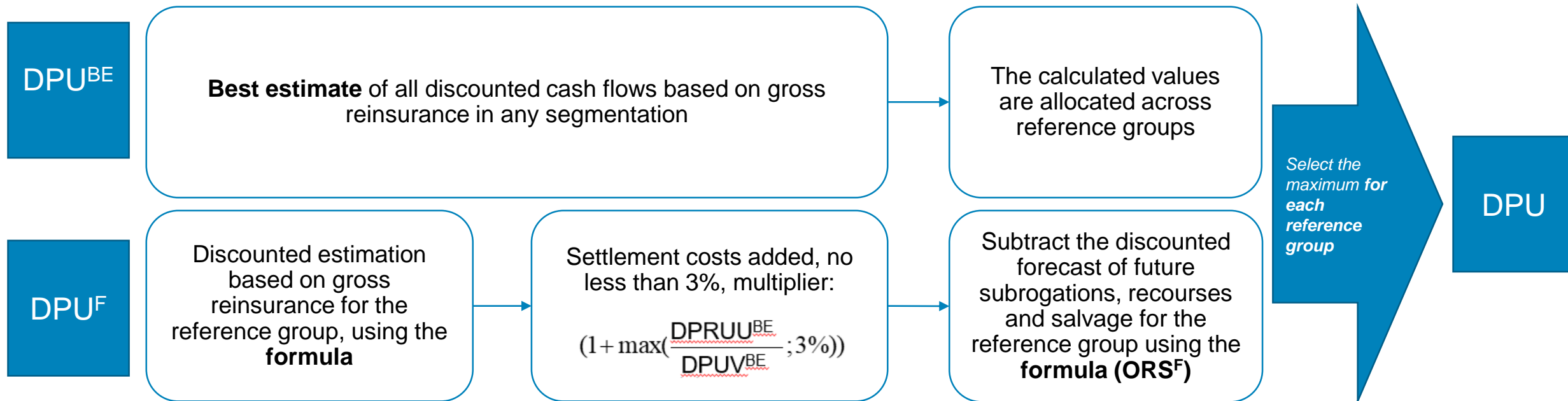
- ✓ The earned premium (ZP) is defined as:

$$ZP = p \times \frac{d}{s},$$

- p – the insurance premium under the contract;
 - d – the number of days in the period for which ZP is determined, falling within the insurance coverage period (considering termination, if applicable);
 - s – the number of days within the insurance coverage period.
-
- ✓ The insurer may disregard cash flows on subrogations, recourses and the sale of salvage when calculating insurance reserves.

Estimation of loss reserve (DPU)

$$DPU = \max(DPU^{BE}; \max(RBNS; DPU^F \times k) \times \left(1 + \max\left(\frac{DPRUU^{BE}}{DPUV^{BE}}; 3\%\right)\right) - ORS^F \times k)$$



RBNS – reported but not settled claims;

DPRUU^{BE} – the best estimate of the present value of future settlement costs for liabilities from the loss reserve;

DPUV^{BE} – the best estimate of the present value of future insurance payout flows from the loss reserve;

k – the approximation ratio for dates not aligning with the quarter end.

Estimation of loss reserve using the formula (DPU^F)

Formula

- ✓ Payment in the primary currency of the reference group.
- ✓ If there is sufficient data (not less than 12 or 20 quarters depending on the reference group), the loss reserve is determined by the BF method*.
- ✓ If there is insufficient data (less than 12 or 20 quarters), the loss reserve is determined by the formula:

$$DPU^F = \max \left(\begin{array}{l} 77\% * ZP_{\text{for 4 quarters}} - \text{Paid claims}_{\text{for 4 quarters}} \\ DPU^F \text{ based on statistics using the BF method*} \end{array} \right)$$

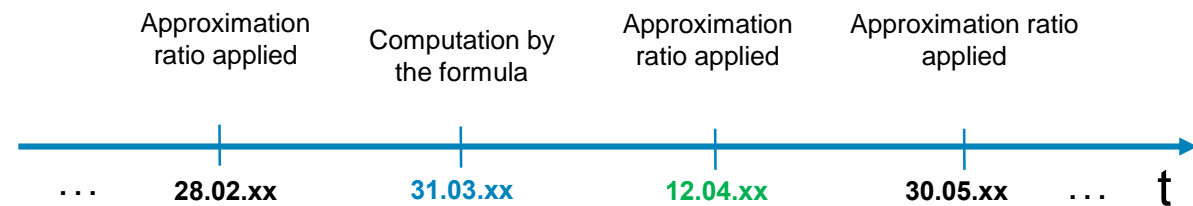
- ✓ Future proceeds from subrogations, recourses and from the sale of salvage (ORS^F) are determined by the BF method* based on statistics for 12-32 quarters.
 - After that accounts receivable from subrogations and recourses are subtracted.
 - ORS^F for reference group 7 (Motor hull insurance) is limited at 15% and for reference group 3 (CMTPL) at 10% of paid claims for 4 quarters prior to the reporting date.

Approximation ratio (k)

- ✓ Estimation for a date other than quarter-end:

$$k = \frac{ZP_{\text{for 12 months before the calculation date}}}{ZP_{\text{for 12 months before the closest quarter-end}}}$$

- k = 1, if the computation is performed on a quarter-end date.



- ORS^F is only determined at the quarter-end. For any other date, ORS^F value calculated at the nearest quarter-end.

* The Bornhuetter-Ferguson method.

Best estimate of loss reserve (DPU^{BE})

Open cash flow list!

Inflows («-»)

- proceeds from subrogations, recourses, and the sale of salvage.

Outflows («+»)

- paid claims;
- expenses (excluding acquisition costs and administrative expenses);
- tax payments where the insurer acts as a tax agent for personal income tax upon insurance claims payments.

Best estimate is based on the assumptions and methods defined by the actuary.

- ✓ The computation of loss reserve at the best estimate only includes anticipated future flows directly related to the settlement of claims **that occurred prior to the calculation date** and remain unpaid.
- ✓ Existing statistical data is utilised to forecast future losses, based on the established trend of loss development from one period to another.
- ✓ **Best estimate forecasting methods:** the Bornhuetter-Ferguson Method, the Chain Ladder Method, simple loss ratio, others.

Premium reserve calculation (DPP)

Open cash flow list!

Inflows
(«-»)

- ✓ Proceeds from subrogations, recourses and the sale of salvage.
- ✓ Premium proceeds as per the contract terms, considering:
 - Only valid contracts expecting premium receipts and contracts with post-payment.
 - The upper bound of the contract.
 - The probability of non-receipt of the next payment.



Not received premiums as per the contract terms dates are recognised as Account receivables

Outflows
(«+»)

- ✓ Insurance payouts **for future claims under valid contracts**. Worth noting:
 - Probability of non-termination.
- ✓ Settlement costs.
- ✓ Administrative expenses, inclusive of costs for maintaining outward reinsurance contracts.
- ✓ Acquisition costs related to the future incoming premium flow.
- ✓ Contract termination payments.

Risk margin

For each reference group i ($i \neq 9$) Risk margin $_i = \max$ (Risk margin as per formula $_i$; Refined stabilisation reserve $_i$)

For the reference group of state-supported agriculture insurance ($i=9$), risk margin is only formed for the excess of stabilisation reserve (StR)

Risk margin is calculated by the formula

✓ Risk margin calculation by the Cost of capital method as per the formula

$$PM = \sum_{t=0}^{n-1} \frac{CoC \cdot SCR_t}{(1 + SD_t)^t}$$

- RM - risk margin
 - CoC - cost of capital rate = 6%.
 - SD_t - discount rate that corresponds to term t .
 - n - the number of years, rounded up, from the calculation date to the date of complete fulfilment of liabilities.
- ✓ SCR_t - the forecast of N2 from the required solvency margin (NRMP) ($=K_i \cdot 23\%$ of the average losses incurred over 3 years), corresponding to term t .
- ✓ Forecast of losses based on:
- loss reserve (DPU);
 - forecast payouts for events occurring after the reporting date under the valid contracts as of the reporting date.
- ✓ The risk margin for the portfolio is the total of values across all reference groups.
- ✓ The risk margin is allocated among reference groups and types of reserves proportionally to the ratio of the net reinsurance premium and loss reserve for each reference group to the overall net reinsurance reserve.

Stabilisation reserve (StR)

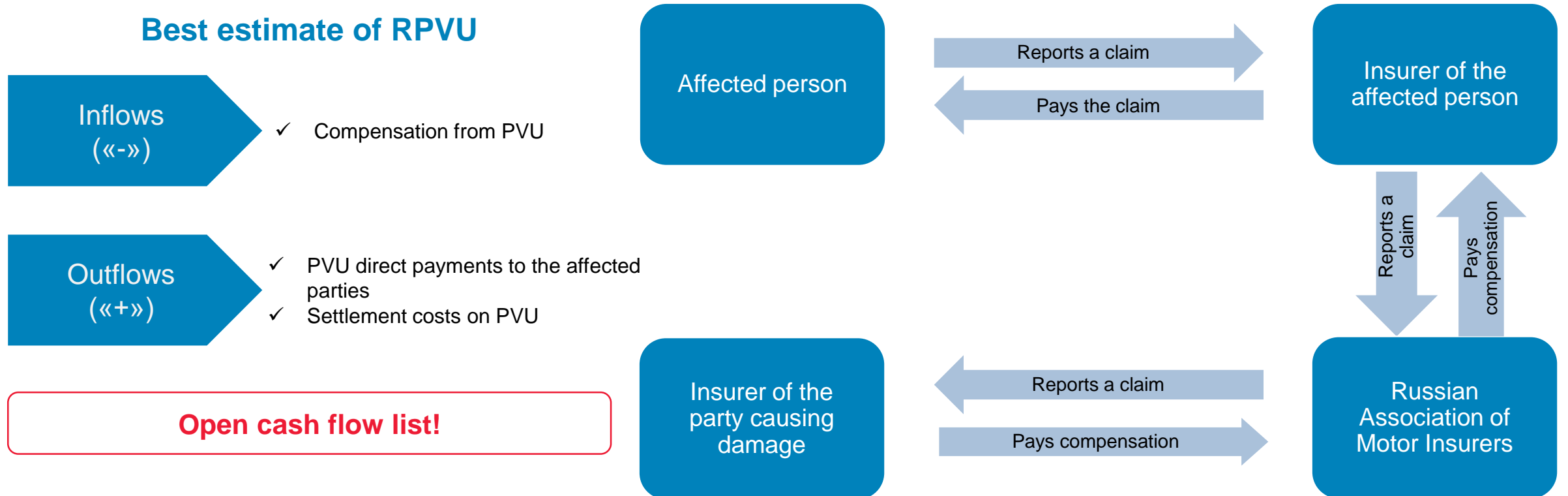
Reference groups	Option for StR calculation
State-supported agriculture	I
Cargo, Financial risks, CMTPL	II
Compulsory insurance of hazardous facilities, Compulsory carriers' liability insurance	II + III
other	The insurer can choose any option (even those not shown on the slide), but not upward



I	Compute StR by a formula that incorporates the financial result
II	Lock in the previously accumulated stabilisation reserve (expressed in monetary terms). There is a possibility of reduction for extreme losses, that exceed 10% of the earned premium in the last year (CMTPL excluded)
III	For new contracts, the value of $0.8 \times$ (StR accrual according to current rules) is added to the required capital as N3 (due to the catastrophic risk nature)

Reserve for direct claim settlement (RPVU)

In Russian legislation of CMTPL in case of a car accident, you can file a claim with your own insurance company, not the insurance company of the party causing damage. After the claim is settled, the insurer of the of the party causing damage compensates the insurance claim to the insurer of the affected person through Russian Association of Motor Insurers. It is called Direct claim settlement (PVU).

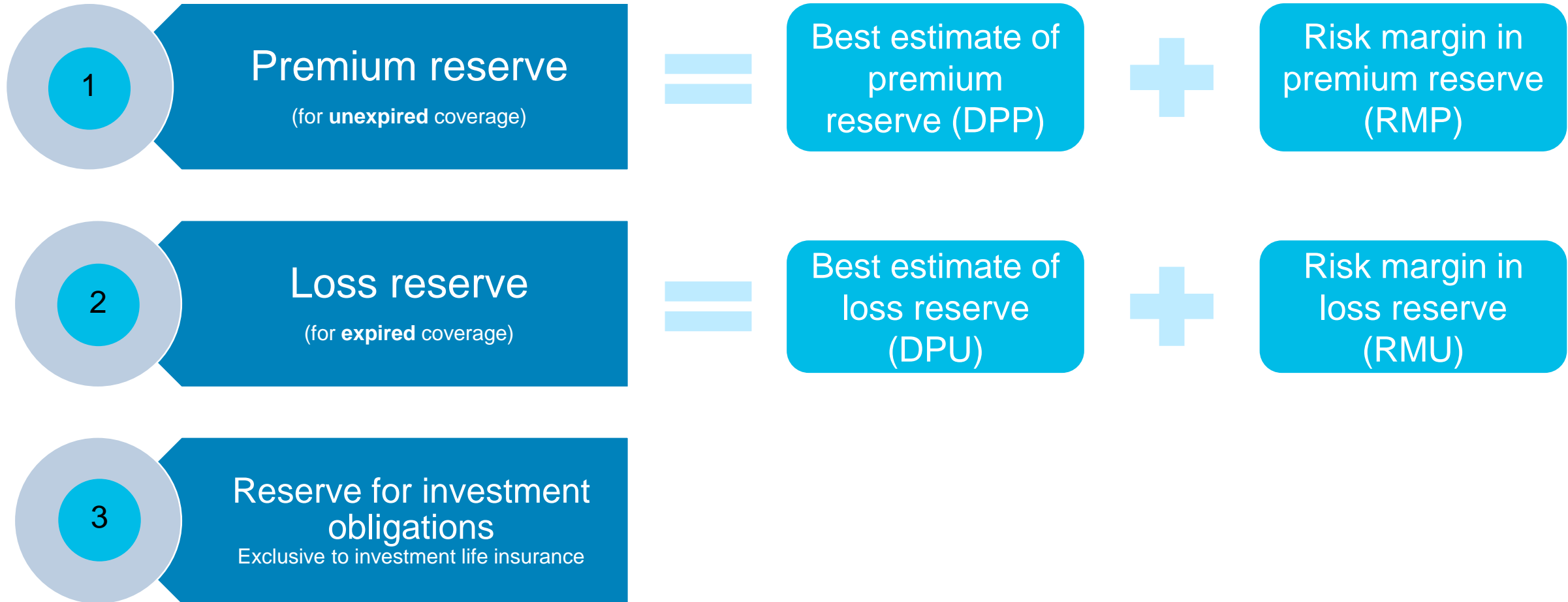




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LIFE INSURANCE

Categories of insurance reserves



Best estimate for life insurance

Cash flows

Open cash flow list!

Inflows	<ul style="list-style-type: none"> ➤ insurance premiums, considering the probability of contract termination and non-payment of premiums by the policyholder, along with other options provided in the contract (when assessing DPP).
Outflows	<ul style="list-style-type: none"> ➤ paid claims; ➤ profit participation payments by the insurer decision (non-guaranteed payments); ➤ other payments; ➤ sums, including surrender sums, paid upon early termination of the insurance contract; ➤ acquisition costs (when assessing DPU, acquisition and administrative costs are not considered); ➤ costs associated with managing outward reinsurance contracts, under which direct contracts related to the reference group are reinsured (in case of DPP assessment); ➤ tax payments where the insurer acts as a tax agent for personal income tax upon insurance claim payment.

Loss reserve

Calculated separately from cash flows:

Reported but not settled claims

+

Liabilities that have become due according to the terms of the insurance contract but have not yet been claimed (for instance, survival benefits)

+

Surrenders - if the termination date has passed, but the payment has not been made partially or in full

+

Additional payouts related to profit or other assets participation concerning losses accounted for in the loss reserve

Best estimate for life insurance

- ✓ DPP and DPU are calculated by contracts and totalled at the reference group level.
 - ✓ DPP can be negative at the contract level, but not at the reference group level.
 - ✓ For investment life insurance, the insurance premium in DPP is part of the incoming cash flows only in relation to the insurance risk.
 - ✓ The following probabilities are considered for cash flows:
 - For premiums - 1) the contract will remain in force, 2) the premium will be paid;
 - For all flows, except premiums - the contract will remain in force.
- ✓ The reserve basis should rely on the insurance company statistics.
 - ✓ Actuarial assumptions: mortality tables, termination levels, contract expense distribution model, anticipated inflation.
 - ✓ Reserve for investment obligations is mandatory. Liabilities must be valued at fair value according to IFRS 13.
 - ✓ For investment life insurance, if the asset has not been acquired by the calculation date, the Reserve for investment obligations is valued at the amount of money intended for its purchase.

Risk margin

- ✓ The risk margin (RM) is determined by the formula::

$$RM = \frac{CoC}{1 + SD_1} \cdot \left(\sum \frac{d - rd}{365} \cdot PVF \cdot Pr \right) \cdot 5\% \cdot Kzh$$

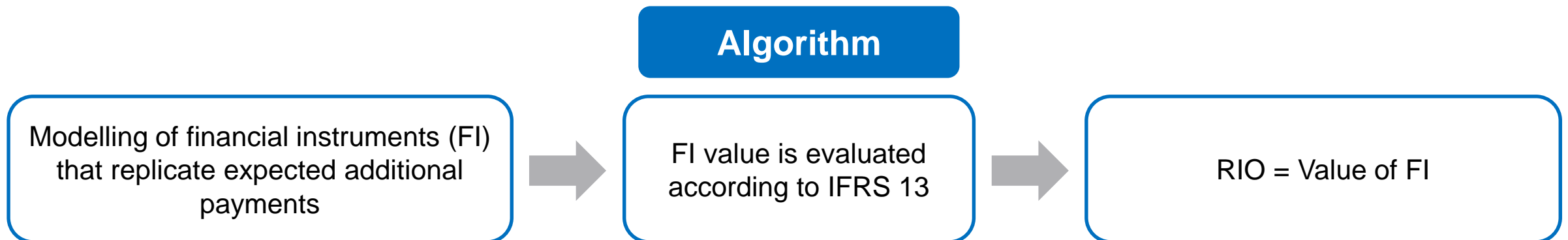
- CoC - cost of capital rate = 6%
 - SD_1 - discount rate for one year duration
 - Kzh - adjustment ratio for outward reinsurance, dependent on the reference group
 - d – the date of the cash payment;
 - rd – calculation date;
 - PVF – the present value of cash flow, factoring in the probability of its occurrence, which is considered when calculating DPP (premium reserve) and DPU (loss reserve); the total is derived from all flows;
 - Pr – the probability of a flow's occurrence.
- ✓ The risk margin amount for a reference group is calculated as the total of the estimated amounts for all contracts associated with that specific reference group. The risk margin amount for the entire portfolio is calculated as the total across all reference groups.

Reserve for investment obligations (RIO)

RIO value in the insurance contract is considered equal to **the fair value of financial instruments**, adjusted for the probability of an insurance event or early termination of the insurance contract. The payments from these instruments match in size and dates with additional payments as per the insurance contract terms and/or changes in the insurance amount.

Fair value is evaluated according to IFRS 13.

If the insurer purchases assets where the beneficiary fully assumes the risk of value changes, RIO value in the insurance contract related to liabilities arising from such value changes is considered **zero** (as these assets and liabilities are excluded from capital calculations).

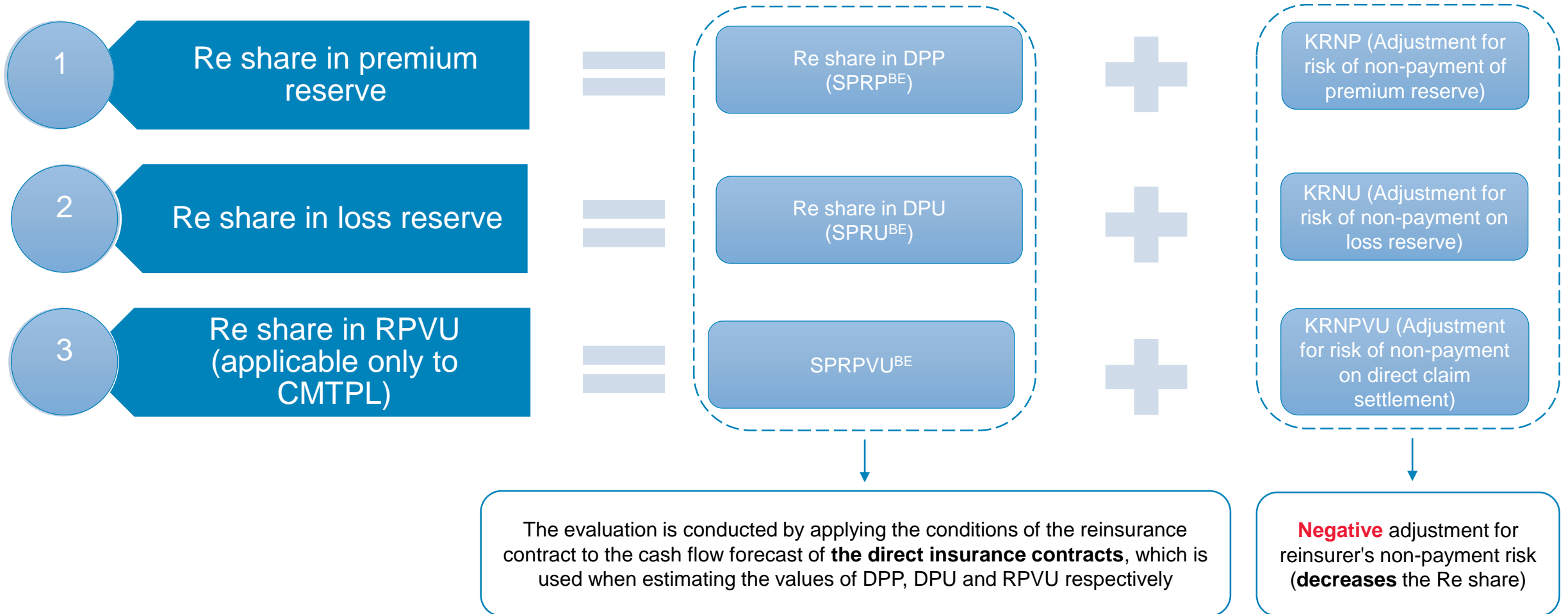




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OUTWARD REINSURANCE IN ACTUAL CAPITAL

Reinsurers' share (Re share) in reserves



Reinsurers' share in insurance reserves

[Open cash flow list!](#)

- ✓ The reinsurers' share in the premium reserve and in the loss reserve is established separately.
- ✓ For obligatory reinsurance: If the direct insurance contract has not been signed yet → No reserves have been made for it → It is impossible to establish a reinsurance share in a non-existent reserve.
- ✓ The reinsurers' share can be negative, and in such cases, it is considered when calculating the capital with the corresponding sign.
- ✓ The reinsurers' share cannot exceed the total of the insurance reserve.
- ✓ The share in the premium reserve (DPP) is established for the insurance coverage period that has **not** expired by the calculation date, while the share in the loss reserve (DPU) is established for the coverage that expired by the calculation date.

Cash flows

Inflows	<ul style="list-style-type: none"> ➤ Reinsurance commission; ➤ Share in insurance payouts; ➤ Share in settlement costs and other insurer costs, if stipulated in the contract;
Outflows	<ul style="list-style-type: none"> ➤ Reinsurance premiums, inclusive of recovery premiums; ➤ Share in income on subrogations, recourse and salvage.

- ✓ The costs associated with **maintaining** a reinsurance contract (such as the wage fund of the reinsurance department) are factored into the cash flows when calculating the insurance reserves gross of reinsurance, rather than when calculating the reinsurance share.

Computation of the best estimate of $SPRP^{BE}$, $SPRU^{BE}$, and $SPRPVU^{BE}$

Set X% for reinsurer share

For quota share reinsurance, it is set out in the contract.

For non-proportional reinsurance, it is calculated:

- Based on payout statistics (if complete statistics available)
- Through simulation modelling – payout statistics is computed (if available, but incomplete)
- Through simulation modelling –based on a specified distribution function (if no statistics available)

Estimation of future cash flows related to losses

1. In cash flow method, ascertain what portion of each cash flow, linked to losses, is reinsured by the outward reinsurance contract
2. Multiply X% of the reinsurance contract share by the cash flow it reinsures, which is associated with losses
3. Apply discounting

Additional cash flows

1. Incorporate future cash flows from reinsurance premiums and rewards as per the conditions of outward reinsurance contracts

Reinsurance premiums and rewards are not projected for direct contracts that are yet to be signed!

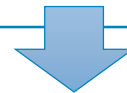
2. Compute other flows (bonuses, etc.), if available
3. Apply discounting

In calculation of the reinsurers' share in non-life reserves, cash flows from direct contracts are multiplied by $\frac{DPU}{DPU^{BE}} = \frac{\max(DPU^F, DPU^{BE})}{DPU^{BE}}$ per the reference group.

Simplified method for evaluating $SPRP^{BE}$ and $SPRU^{BE}$

! Simultaneous compliance
with the conditions

1. Non-life insurance (1-17 reference groups)
2. There are statistics available for insurance payments spanning more than 20 (12) quarters for reference groups
3. Earned premium in all quarters is > 0
4. The terms of outward reinsurance contracts remained unchanged during this period (excluding the insurance premium and reinsurance reward)
5. This approach is provided for by the internal document on the insurance reserves calculation



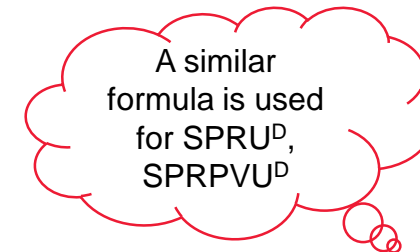
Calculate net reinsurance cash flows. Then $SPRP^{BE}$ ($SPRU^{BE}$) = Gross reinsurance cash flows *minus* net reinsurance cash flows

The formula for calculating KRNP, KRNU, KRNPVU

The calculation is based on an outward reinsurance **contract** (not on a reinsurer)

$$KRNP (KRNU, KRNPVU) = -\max \left(0,65 \times \frac{PD}{1 - PD} \times \left(\frac{\sum_{j=1}^J \frac{d_j - d}{365} \times PVF_j \times Pr_j}{SPRP^{BE} (SPRU^{BE}, SPRVU^{BE})} \right) \times SPRP^D (SPRU^D, SPRVU^D); 0 \right)$$

- PD - probability of default, determined as per Table 1 of Appendix 2 of Regulation 781-P, based on the reinsurer's credit quality group;
- $SPRP^{BE} (SPRU^{BE}, SPRVU^{BE})$ - the best estimate of reinsurers' share in the premium reserve (loss reserve, RPVU);
- j - the sequential number of the subsequent cash flow accounted in the best estimate;
- J - the count of cash flows accounted in the best estimate;
- PVF_j - the present value of cash flow j ;
- Pr_j - the probability of cash flow j occurrence;
- d_j - the date of the cash flow;
- d - calculation date.



$$SPRP^D = SPRP^{BE} - \text{Deposit premiums and losses} \times \frac{SPRP^{BE}}{\sum SPRP^{BE}}$$

- $SPRP^{BE}$ and the Deposit premiums and losses* are determined by the outward reinsurance contract;
- $\sum SPRP^{BE}$ - the total of $SPRP^{BE}$ for all reference groups related to the direct contracts.

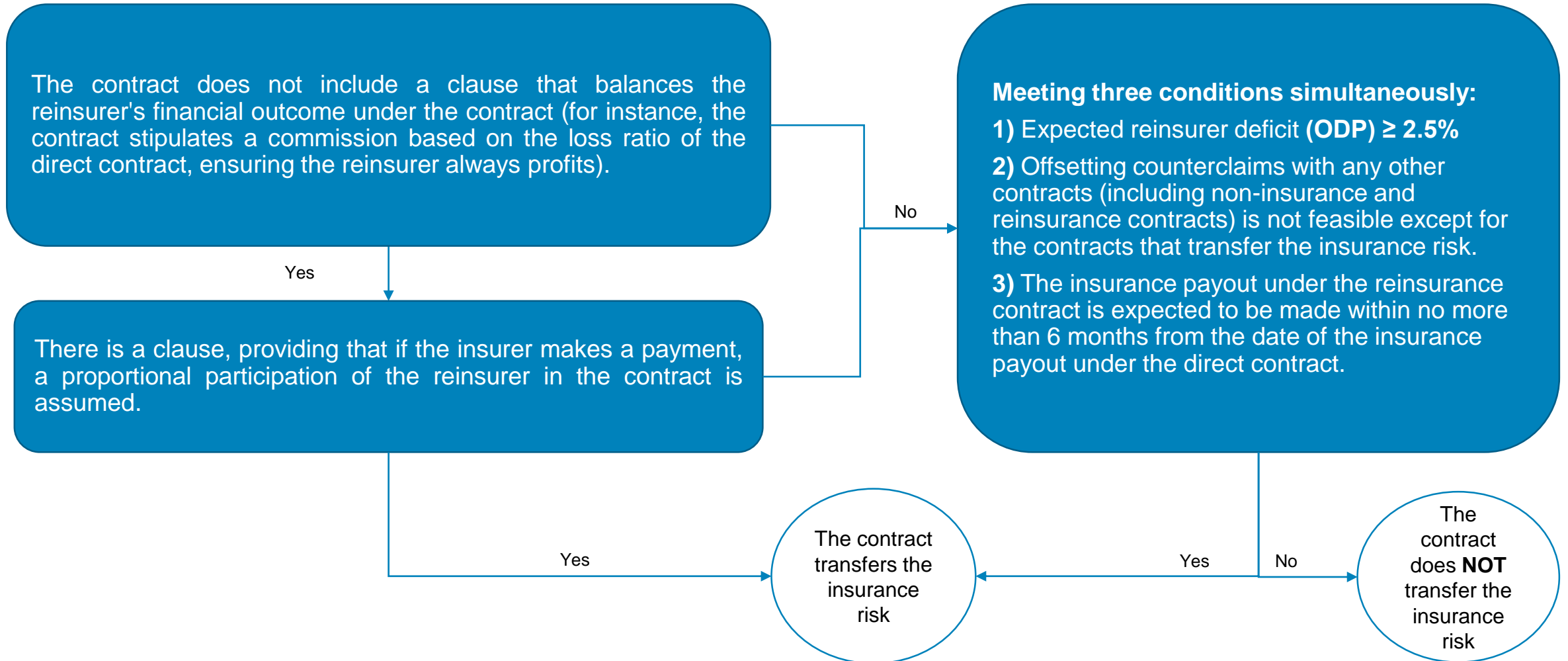
* Cash flows relating to the reinsurer's obligations to pay a portion of the insurance premium under the outward reinsurance contract, which the ceding insurer has the right to defer as a guarantee of fulfilment of the reinsurer's obligations under the contract (deposit premiums), and also in the aforementioned part, the size of which is determined by the reinsurer's share in the loss reserves (deposit loss) of the ceding insurer.



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OUTWARD REINSURANCE IN REQUIRED CAPITAL

Classification of outward reinsurance contracts



Calculation of ODP

- ✓ **The expected reinsurer deficit (ODP)** - the product of the probability of a predicted negative financial outcome for the reinsurer (AP) and the mathematical expectation (modulo) of the projected financial result, assuming it is negative, divided by the anticipated contract premium:

$$ODP = \frac{p(AP < 0) \times |E(AP|AP < 0)|}{\textit{Anticipated premium under contract}}$$

- ✓ AP is evaluated based on the projected cash flows resulting from the reinsurance contract terms, considering the time value of money.
- ✓ For calculating ODP, parameters and assumptions are used that align with those from the calculation of insurance reserves for the main business.
- ✓ A reinsurance contract can be tested for the ODP criterion $\geq 2.5\%$ at any date, starting from the contract recognition date. **ODP is not subsequently recalculated** (except in the case of signing a supplementary contract).
- ✓ The insurer has the right to disregard ODP in relation to the reinsurance contract.
- ✓ From the date when ODP is calculated, the contract must be recognised for the purposes of calculating K_i / K_{zh} and risk margin prospectively if $ODP \geq 2.5\%$.
- ✓ On the date of signing a supplementary contract, ODP must be recalculated if it was previously $\geq 2.5\%$. This takes into account both actual cash flow up to the calculation date and forecasted cash flow.

Open cash flow list!

Cash flows

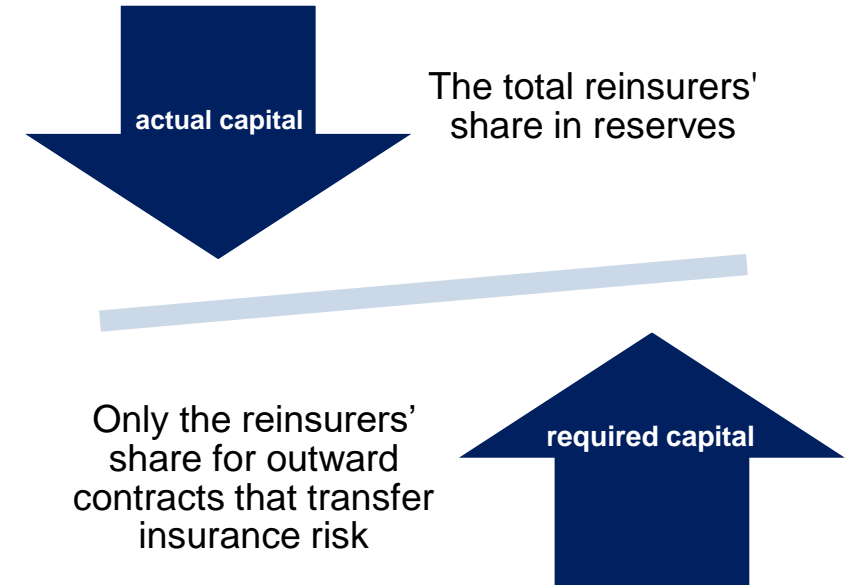
Inflows	<ul style="list-style-type: none"> ➤ Reinsurance commission; ➤ Share in insurance payouts; ➤ Share in settlement costs and other insurer costs, if stipulated in the contract;
Outflows	<ul style="list-style-type: none"> ➤ Reinsurance premiums, inclusive of recovery premiums; ➤ Share in income on subrogations, recourse claims, and salvage.

Required ratio (RR)

- The adjustment ratios of outward reinsurance K_i and K_{zh_i} are multiplied by the factors involved in the NRMP calculation, thereby reducing the required capital.
- Insurance reserves and the reinsurers' share in them also contribute to the RK calculation (the risk impact on capital).

$$RR = \frac{K + SZ}{\max(MRUK, NRMP + RK)}$$

- K – actual capital = Assets - Liabilities
- SZ - subordinated loans
- $MRUK$ - minimum required authorised capital
- $NRMP$ - required solvency margin
- RK - value of risk impact on capital



$$N = \max\left(\sum_i N_{1i} \times K_i; \sum_i N_{2i} \times K_i\right) + (1 - n) \times N_3 \quad (\text{Cl. 6.3.2})$$

✓ $N_{1i} = 16\% \times \sum_j \left(\max\{P_j; 0\} \times \frac{1}{T_j}\right) + \max(X_3 \times \sum_k \left(\max\{P_k; 0\} \times \frac{1}{T_k}\right) - SR_3, 0)$, (Section 6.3.2.1), for RG 3 (CMPTL),

✓ $N_{1i} = 16\% \times \sum_j \left(\max\{P_j; 0\} \times \frac{1}{T_j}\right)$, (Section 6.3.2.1) for other reference groups, where:

j - insurance contract (except for those with obligations transferred within the transferred insurance portfolio) recognised within the 12 months preceding the calculation date inclusively, or recognised earlier but still in effect on the calculation date, for the reference group (RG) j

k – insurance contract (except for those with obligations transferred within the transferred insurance portfolio and incoming insurance contracts) recognised within the 12 months preceding the calculation date inclusively, or recognised earlier but still in effect on the calculation date, for the reference group (RG) 3 (CMPTL)

P_j (P_k) - insurance premium after refunds, less the total deductions from insurance premiums for the insurance contract j (k)

T_j (T_k) - the total duration of insurance coverage under insurance contract j (k) (in years), rounded down if it exceeds one year, and rounded up if it is below a year

X₃ – coefficient that reflects the market share in premiums for RG 3 (CMPTL) for the closest quarter end

SR₃ –stabilization reserve for RG 3 (CMPTL) accumulated to 30.06.2022.

✓ **N_{2i}** - a measure calculated as 23% of 1/3 of the losses incurred under contract j for RG i (Cl. 6.3.2.2)

✓ **N₃** - the total of auxiliary CR values calculated as per Appendix 6, for RG 5 and 11 (Cl. 6.3.2.3)

✓ **n** - the profit tax rate

Reinsurance adjustment ratio K_i for non-life insurance

$$K_i = \frac{\text{Payouts}^N - \text{Subrogations}^N + \text{Costs}^N + \Delta\text{Reserves}^N}{\text{Payouts} - \text{Subrogations} + \text{Costs} + \Delta\text{Reserves}}$$

- i – a reference group;
 - Payouts - insurance payouts;
 - Subrogations - income from subrogations, recourses and from the sale of salvage, as well as fluctuations in the Accounts receivable of subrogation and recourse and changes in the value of salvage vehicle assets;
 - Costs – settlement costs;
 - $\Delta\text{Reserves}$ - change in DPU and RPVU values;
- *The superscript 'N' signifies net reinsurance. In determining the reinsurers' share, **only contracts that transfer insurance risk are counted.***

- **For non-life insurance**
- Only reinsurance pool contracts are utilised under CMTPL
- If either the numerator or denominator is negative, $K_i = 1$
- K_i is calculated based on a 12-month statistics. If no statistics are available, then $K_i = 1$
- Minimum K_i :

Reference group	Limits
1 Medical insurance, 2 Personal accident	0.85
3 CMTPL	0.05
11 Compulsory insurance of hazardous facilities, 5 Compulsory carriers' liability insurance, 13 Travel operators liability and 17 Non-proportional inward reinsurance	0.15
7 Motor hull insurance	0.5
Other groups	0.3

Calculation of NRMP (Cl. 6.3) for life insurance

NRMP for life insurance

$$N^{zh} = 5\% \times \sum_i ((DPP_i + DPU_i) \times Kzh_i)$$

DPU_i, DPP_i - cash flow for loss reserve, cash flow for premium reserve, for RG i ;

$DDPU_i, (DDPP_i)$ - the share of reinsurers in the premium reserve (loss reserve) taken in account for calculation of NRMP for RG i

Only outward reinsurance contracts that transfer insurance risk are used for calculation of the adjustment ratio

Reinsurance adjustment ratio – Kzh_i

$$Kzh_i = \begin{cases} \max\left(1 - \frac{DDPP_i + DDPU_i}{DPP_i + DPU_i}; 0,85\right) \\ \text{for reference group 21} \\ 1, \text{ for reference groups 18-20} \end{cases}$$

- i – a reference group;
- $DDPP_i$ ($DDPU_i$) - the share of reinsurers in the premium reserve (loss reserve) **under contracts that transfer insurance risk**;
- DPP_i (DPU_i) - the premium reserve (loss reserve) without considering the risk margin



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APPENDICES

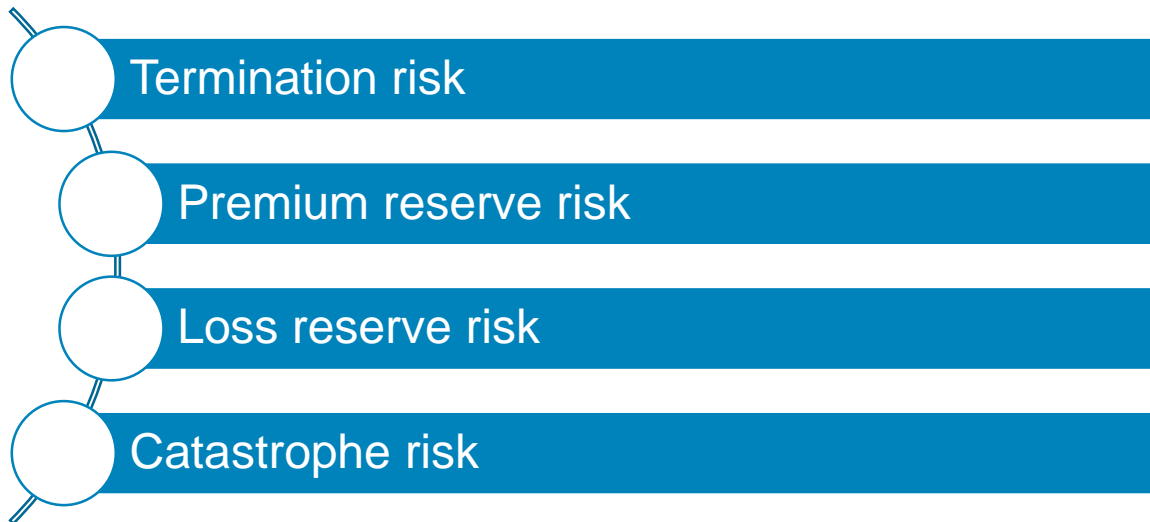
Planned future changes: Incorporation of insurance risk into Regulation 781-P

$$\text{➤ } RP = \frac{K+SZ}{\max(MRAC; \text{SCR}+RK)}$$

SCR-segment (insurance risk) will be refined, impacting the computation of required capital and risk margin

$$\text{➤ } RM = 0,06 \times \sum_{t \geq 0} \frac{\text{SCR}(t)}{(1+r(t+1))^{1+t}}$$

SCR non-life



SCR life

