

Reinsurance

Long-tail liability risks

Pricing

Risk capital management

Flexible bespoke structures

Optimal capital retention

and more...



Insureware
Innovative Statistical Solutions for P&C Insurance

Benefits and strategic competitive advantages

The ICRFS™ Reinsurance platform provides many unparalleled benefits and strategic competitive advantages to Reinsurers and their clients.

- Risk characteristics of the business provided by unique modeling frameworks.
- Loss scenarios are based on auditable and explicit assumptions that can be statistically validated by the data.
- Models can be developed for individual lines or a composite model for multiple LoBs with volatility correlations (measured from the data) relating the individual LoBs. Either modeling framework can provide input into the Reinsurance module.
- Both on-the-fly scenarios and fully automatable what-if analyses can be incorporated into Reinsurance pricing.
- Accurate risk capital assessments are reflected in competitive pricing of portfolios.
- Flexible and customisable reinsurance structures can be applied to loss development arrays.
- Reinsurance contracts can be monitored.
- Contracts can be prospective and retrospective.
- Reinsurance contracts can be assessed for correlations with existing business.
- Risk capital requirements for the Insurer can be calculated Net of Reinsurance.
- Optimal reinsurance programs for risk capital management can be developed for the cedant.

All of these benefits enable Reinsurers to take on risk according to their risk appetite with many competitive advantages.

Insurers can assess whether they are obtaining a fair price for the reinsurance programs given the level of risk ceded to a reinsurer from the insurers LoBs. As the reinsurance module is ambivalent to whether the user is the Reinsurer or the cedant, all advantages and benefits apply equally to either party.

An example of a reinsurance structure comprising four different types of contracts

Distributions can be obtained for an Insurer holding a mix of different contract types over the Accident/Underwriting periods included in a forecast.

- Retrospective reinsurance – historical periods for which the insurer is now proposing to purchase reinsurance.
- Legacy reinsurance – contracts already in place whose results are being monitored.
- Prospective reinsurance – proposed contracts on future periods.
- No reinsurance – these periods are included to round out the Insurer’s position net of Reinsurance.

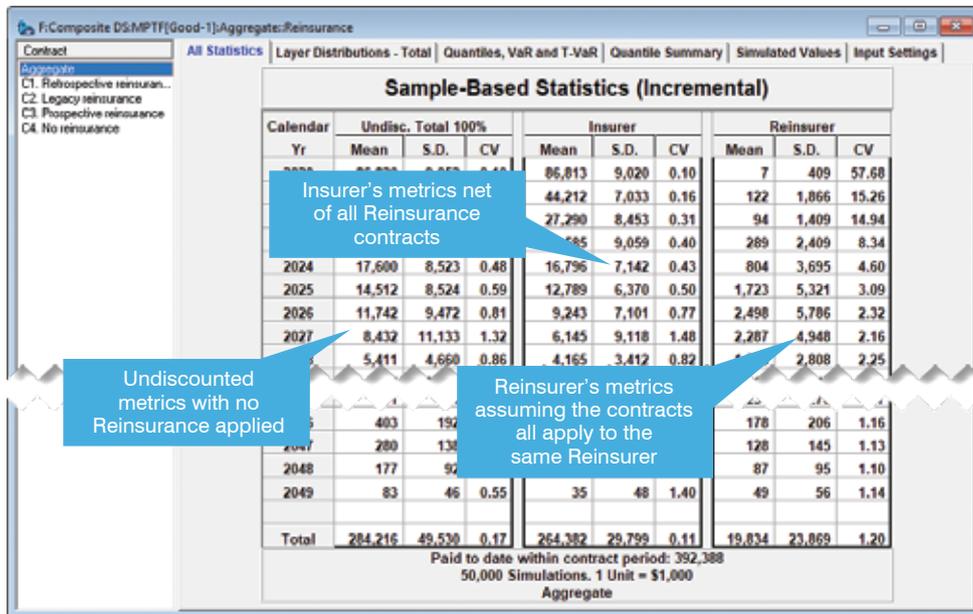
In the example below the current year is 2019 and the forecast has been set up to cover the years 2009-2020. The four contract types are shown in the order listed above.



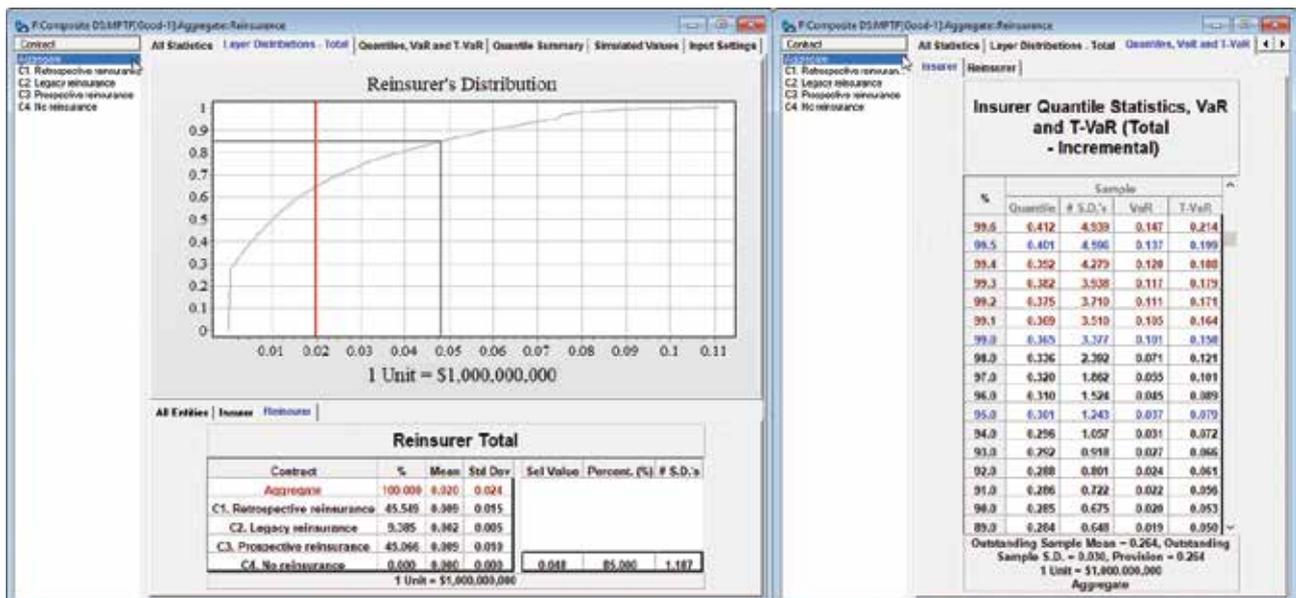
Mixtures of quota share (QS), discounting and inflation scenarios can be customized to each contract to further detail the Insurer’s and Reinsurer’s risk profiles.

Reinsurance scenarios can be run for any aggregate defined in a forecast scenario. Multiple LoBs can be included and Accident/Underwriting periods need not be consecutive. Attachment points for Legacy Reinsurance contracts are adjusted by their respective Paid To Date (PTD).

Sample statistics by calendar year are shown for the undiscounted distributions by calendar year, along with the Insurer, Reinsurer, and Retrocessionaire (if present) after any inflation, discounting, and quota share allocations. Risk capital requirements can be compared with the risk capital for the entire portfolio to assess the cost benefit of the Reinsurance (in respect of risk capital efficiency).



Loss distributions, risk capital calculations, (V@Rs and T-V@Rs), and other metrics are calculated for the aggregate of all contracts - including those where Reinsurance does not apply allowing an accurate view of the Insurer's position net of Reinsurance.



The same metrics are available for the three individual contracts: Retrospective (C1), Legacy (C2) and Prospective (C3).

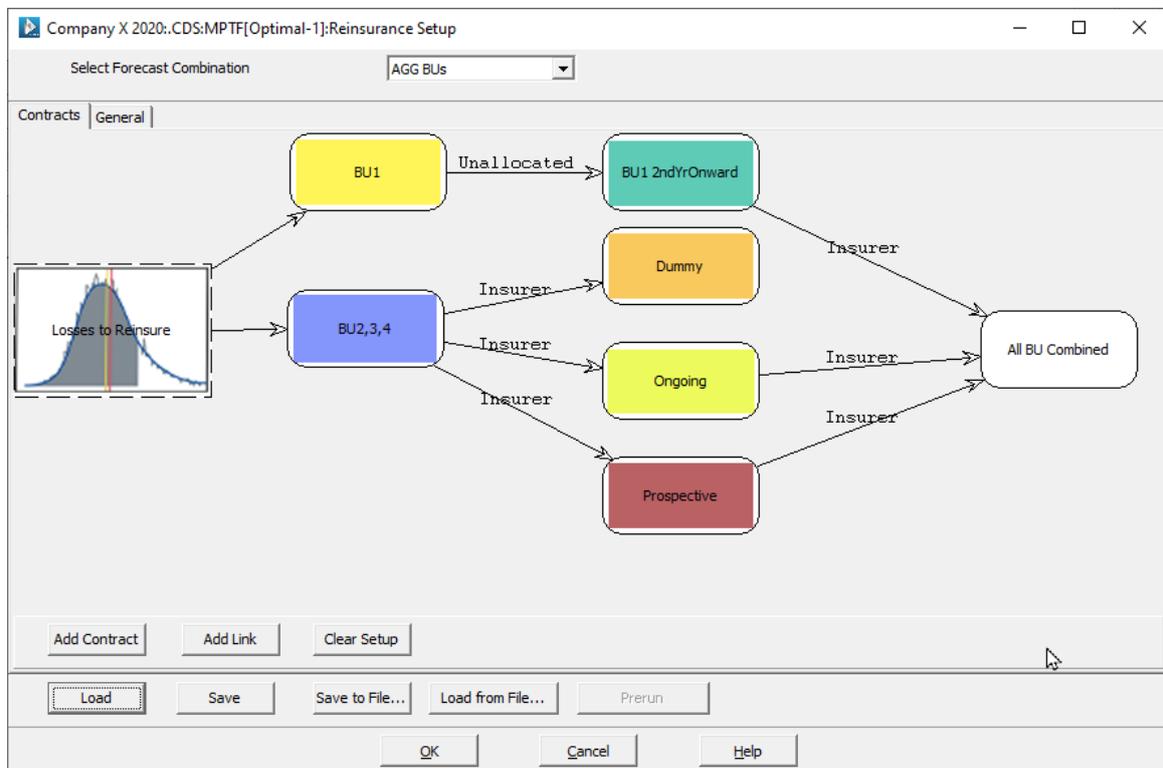
ICRFS™ 2022 builds on the new Reinsurance module introduced in ICRFS™ 2020 (detailed below).

Any combination of reinsurance contracts, either LPTs or ADCS, can be created for single LoBs (PTF) or multiple LoBs (MPTF). Contracts can be chained, pooled, and layered.

Reinsurance contracts:

- May be monitored of time as the start point of a contract may be historical;
- Contain non-contiguous accident (or underwriting) periods;
- May contain any number of layers (previously maximum was 3);
- Consist of any number of [nameable] capital providers (previously restricted to insurer/reinsurer/retrocessionaire);
- Quota share can be individualized for each contract;
- May be chained between multiple contracts – allowing ‘what if’ analyses where multiple layers of reinsurance may apply (for instance at the line of business level and company level)
- Previous versions of reinsurance are automatically transferred to the new format on loading.

Examples of applications of the ICRFS™ 2022 Reinsurance module below.



Below is an example of a Reinsurance contract flow illustrating various types of layered contracts.

1. BU1 [Yellow]

This contract applies to Business Unit 1, First calendar year only. The second and following calendar years are not allocated within the contract and simply flow out as 'unallocated' to the next contract, BU1 2ndYrOnward.

2. BU 2,3,4 [Blue]

This contract is a simple ADC type contract on all accident years applying to the business units 2, 3 and 4. This contract has been active prior to the current valuation year.

3. BU1 2ndYrOnward [Teal]

This contract applies to Business Unit 1 after the contract, BU1, has been processed. As BU1 only operates on the first calendar year, in effect this contract applies to the second calendar year onward (thus the name).

4. Dummy [Orange]

This contract is here for illustrative purposes only. The contract allocates all losses to the Insurer layer. In practice this is unnecessary to include as any simulations that are active from the initial 'Losses to Reinsure' entry point automatically flow to the final 'Aggregate' in the summary according to the last allocation to a capital provider.

5. Ongoing [Green]

This contract take some accident years from the insurer layer after the contract, BU 2,3,4, has been processed. This contract was bought at the same time as the BU 2,3,4 contract and offers additional protection for a subset of the accident years.

6. Prospective [Red]

This contract is being proposed. The first calendar year is after the current valuation period and covers the insurer layer after BU 2,3,4 has been applied for accident years not in (4) or (5). In the previous valuation period these accident years would have been included in (4).

7. All BU Combined [White]

This contract is another proposed contract taking the insurer layer from multiple contracts (3), (5), and (6). In this last contract we have:

- Multiple attachment points
- Multiple capital providers, and
- Varying quota share

Data Driven Reinsurance



ICRFS™ Reinsurance

Designed for ADCs and LPTs:

- Mitigate model specification risk
- Monitor multiple ADC and LPT reinsurance contracts simultaneously
- Reserve Risk net of reinsurance contracts
- Design optimal retention policies
- Manage risk capital efficiently
- Price ADCs and LPTs
- Prospective and Retrospective
- Long tail liability Enterprise Risk Management
- Contracts with varying quota share by layer

Mitigate model specification risk and see your business in a new light?

Insureware's platform **ICRFS**TM

**can be implemented enterprise-wide
in a few days and gives you:**

- Long tail liability Enterprise Risk Management
- Unparalleled insight and intelligence
- High powered analytics at ludicrous speed
- Structured databases for managing all risks
- ORSA and Solvency II metrics including the Economic Balance Sheet for the aggregate of multiple LoBs
- Single composite model for multiple LoBs
- Multiple aggregation at different levels of segmentation
- Reserve, pricing and reinsurance risk assessments
- Liability distributions and correlations by calendar year
- Risk capital allocation by LoB and calendar year
- Reserve Risk net of reinsurance contracts
- Graphical displays of identified models
 - Trends in three directions
 - Volatility about trends
 - Correlations
- Comprehensive model identification and validation tools
- Creative solutions for insoluble problems within a robust, yet flexible, framework
- ... and much more!

About Insureware

Insureware is not your typical long-tail liability risk management firm: we are R&D focused. Our team of world-class statisticians originated many of the ideas that the industry now aspires to. They have published numerous papers not only in actuarial journals but also in preeminent statistical journals. Insureware creates and supports the only comprehensive, enterprise wide, long-tail liability risk management software in the world.

Insureware has advised on a wide-range of insurance matters including:

- Reserve due diligence;
- Mergers and Acquisitions;
- Assessing risk capital and Solvency II capital requirements for submissions to regulators and rating agencies;
- Underwriting and pricing; and
- Reinsurance transactions.

Insureware creates unique collaborative partnerships with each client. The partnership facilitates the growth of incomparable knowledge, benefits, and applications.

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