

Long-tail liability risk management

It's time for a

scientific

Approach > > >



Insureware

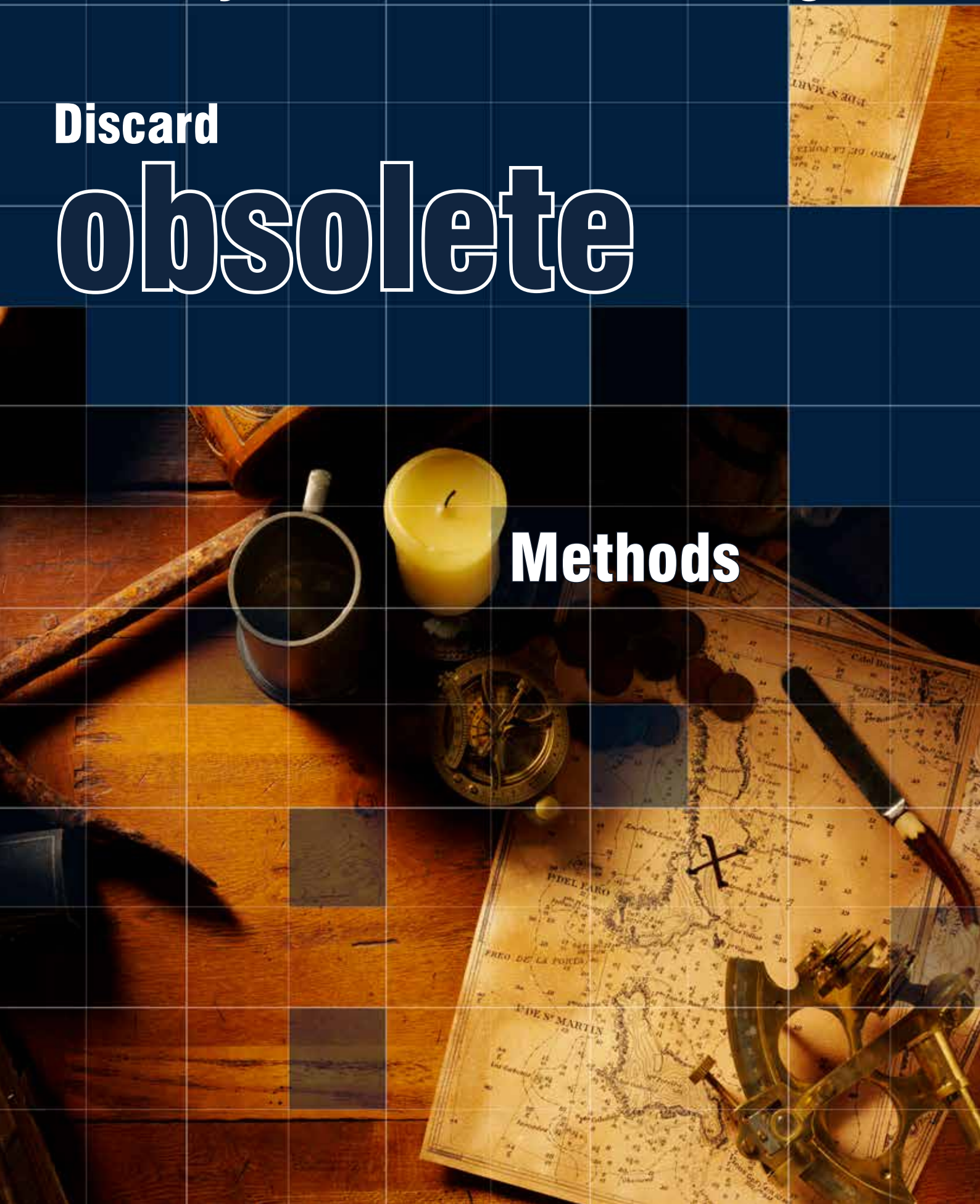
Unique corporate culture of innovation

**Do you need to be confident about
where your business is heading?**

Discard

obsolete

Methods



**Accurate and timely metrics critical
for your financial decisions?**

Embrace

disruptive

Technology



Your P&C competitor does not want you to have ICRFS™ 2018



RISK MARGINS
LOSS RESERVES
ACTUARIAL MODERNIZATION
ORSA
SOLVENCY II
REINSURANCE
IFRS 17

You would have:

- A single comprehensive system for reserving, pricing, and risk capital calculations
- Automation utilities
- Insight into loss cost trends
- Identify trends and volatility in development, accident and calendar time
- Models that mitigate model specification risk – by design
- Liability stream distributions by calendar period
- Accurate assessment of risk capital
- Reinsurance contracts and reserves net of reinsurance
- Support for Solvency II and IFRS 17 metrics for long-tail liabilities
- A well informed actuarial department

Data Driven Reinsurance



ICRFS™ 2018 Reinsurance

Designed for ADC and LPTs:

- 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



Insureware
Innovative Statistical Solutions for P&C Insurance

ICRFS™: The world's best long-tail liability risk management system

ICRFS™ is a high-powered analytical and data management system and the only actuarial software which treats insurance data arriving in calendar time as an essential feature of its modeling solutions. Designed with the P&C actuary and senior executives in mind, results are delivered in seconds.

The software is:

- small-footprint,
- intuitive and graphic,
- very fast, and
- rapidly implemented enterprise wide!

Insureware's new versatile technology, ICRFS™ Importer, accelerates the implementation process even further! ICRFS™ Importer builds a bridge between a database holding a mass of transaction records and an analytic engine which can analyse triangle data.



ICRFS™ Importer

Access information instantly

- Connect large repositories of unit record data with ICRFS™
- Extract all database variables
- Create triangles at any granularity for analysis
- Convert claims table data into loss development triangles
- Aggregate:
 - Across all values of a variable
 - By particular values
 - Across multiple categories and values

Relational databases

Access information instantly

- Small footprint
- Fast to implement enterprise wide solution
- Data organized according to your requirements
- Models and forecast scenarios saved in databases
- Simple to navigate
- Easy to monitor, manage, and update



Significant gains to an Insurance organization can be achieved by creating one or more ICRFS™ databases. These databases serve as a repository for all aspects of the company's long tail liability risks. All the information in the database including data, models, and results, are right at your fingertips.

Modeling Frameworks

The identified models in the Probabilistic Trend Family (PTF) and Multiple Probabilistic Trend Family (MPTF) modeling frameworks describe the trends in the three directions (development, accident, and calendar) along with the volatility around the trends. They provide complete loss distributions by accident period, calendar period, and total.

Modeling multiple long tail liability lines

Get the complete perspective

- Introduction to probabilistic modeling frameworks
- Common drivers and measuring trends
- Correlations and their impact
- Long-tail liability risk profiles
- One composite model for the whole company
- Aggregate distributions for accident year, calendar year, and totals
- Quantiles (percentiles), V@Rs, and T-V@Rs
- Economic Balance Sheet and Solvency II metrics
- Real life case studies!



Pricing: Segments, Layers and Reinsurance

- Introduction to probabilistic modeling frameworks
- Pricing future underwriting years including for the aggregate of multiple LOBs
- Pricing segments
- Assessing optimal outward reinsurance
- Layers and High Severity/Low Frequency
- Adverse Development Cover
- Real life case studies!



Understanding correlations and common drivers

- Purpose of correlation measures
- Correlations are model dependent
- Common accident year and calendar year drivers versus correlations
- Impact of accident year drivers on pricing
- Real life case studies!



Solvency II – one year and ultimate year risk horizons for long-tail liabilities

- Economic Balance Sheet
- Solvency II Capital Requirement
- Technical Provisions
- Market Value Margins
- IFRS 4 Phase II
- Fungibility and Ring Fencing
- Consistency of metrics on updating
- One year ahead metrics



An Insureware case study

Did poor methodology sink Tower Group?



Tower Group: a failure in progress since 2007

- A new calendar year trend that emerged in 2006 was steadily eroding their financial position and culminated in the failure of Tower Group in 2013 when under-reserving was finally noticed.
- What took experts and stakeholders so long to see the problem?
- Statistical models which describe calendar year trends in the data clearly demonstrate Tower Group was sinking way back in 2009!
- Commonly used methodologies do not measure calendar year trends.
- Using the right modeling tools in 2007 could have saved Tower Group. By 2011 it was far too late.

Find out more at insureware.com

WHAT DOES ELRF 2018™ STAND FOR?

*Buy your
copy today
for \$999*
insureware.com*

EFFORTLESS

Traditional & stochastic General Insurance, Reserving methods and data warehousing in a single purchase.

All the information in the database including data, models, and results, are a mouse-click away.

Accessing data and information through the ELRF™ application is a pleasure.

RAPID

Cut implementation and use time by over 80%!

ELRF™ takes minutes to install. Insureware provides database scripts allowing enterprise wide, server databases to be set up within hours. Report templates let you get analysis out in the format you need quickly. Insureware lets you focus your resources on getting and delivering results – not getting data or manipulating formulae!

FUNCTIONAL

- Link ratio methods formulated as regression estimators
- The Mack (Chain Ladder) and Murphy methods
- Bootstrap technique
- Diagnostic tools
- Over 144 link ratio methods

Brought to you by Insureware - creators of ICRFS™ 2018

*Local taxes may apply

ELRF™ Best's Schedule P

Exclusive to Best's Schedule P subscribers

Insureware and A.M. Best have created ELRF™ Best's Schedule P. This application, freely available with a Best's Schedule P subscription, is pre-loaded with Best's Schedule P data in an ICRFS™ structured database primed for Insureware's analytical tools.

Structured access to Best's Schedule P data

Empowered with this application you will obtain:

- Offline access to Best's Schedule P long-tail liability lines and derived financial metrics in an ICRFS™ structured database.

Secure the information you need fast!

- Pre-calculated critical financial information:
 - Reserves Held;
 - %IBNR;
 - Total Loss Ratio;
 - Survival Ratios; and
 - Much more!

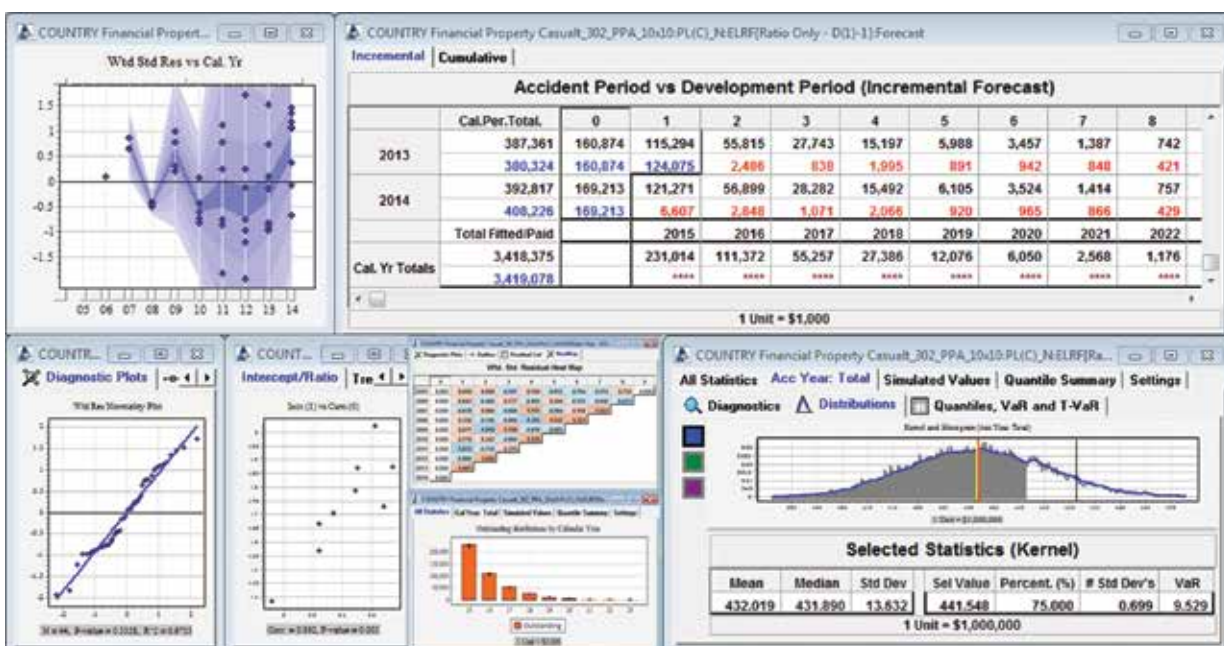
Drill down by classification variables and sort metrics to glean hidden insights.

- All available Best's Schedule P triangles:
 - Paid losses;
 - Case Reserve Estimates;
 - Incurred Losses (not including BULK and IBNR);
 - Number of Claims Reported; and
 - Number of Claims Closed.

Acquire any Schedule P loss development array data for trend analysis instantly.

Construct a complete picture of a company's reported liabilities, their holdings, and their financial positioning in the industry.

Analytical tools including the Mack method and the bootstrap technique

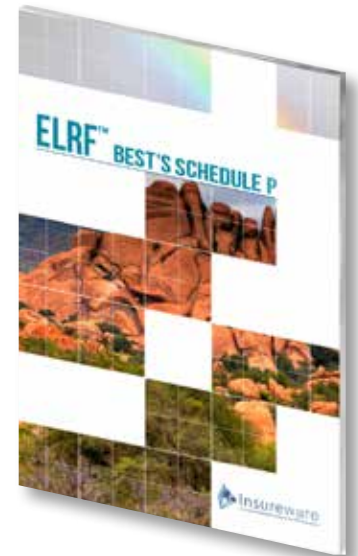


ELRF™ Best's Schedule P

Exclusive to Best's Schedule P subscribers

- **Free with a Best's Schedule P subscription!**
- Offline access to Schedule P long-tail liability lines and derived financial metrics;
- Pre-calculated critical financial information including Reserves Held, %IBNR, Total Loss Ratio and more!
- Drill down by classification variables and sort metrics to glean hidden insights;
- All available Schedule P triangles;
- Additional Reserves Held and Ultimates Held triangles where they can be calculated;
- All analytical tools included in ELRF™!

Construct a complete picture of a company's reported liabilities.



ICRFS™ Best's Schedule P

Exclusive to Best's Schedule P subscribers



- All of the benefits and features of ELRF™ Best's Schedule P.
- Probabilistic Trend Family (PTF) Modeling Framework:
 - Identify trends in the three directions (development, accident, and calendar);
 - Measure the volatility around the trends; and
 - Compare loss costs between companies and LOBs.
- Multiple Probabilistic Trend Family (MPTF) Modeling Framework:
 - Measure correlation between LOBs driven by the data;
 - Determine risk capital allocation and diversification credit for entire companies;
 - Calculate Solvency II one-year ahead statistics and associated risk for individual Lines of Business or whole companies; and
 - Much more!

ELRF™ Best's Schedule P is available to all Best's Schedule P subscribers through BestLink and requires an active Best's Schedule P subscription for the relevant years. The pre-loaded Best's Schedule P data includes both Net (20x10 and 10x10) arrays.

For more information on Best's Schedule P
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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 creates unique collaborative partnerships with each client. The partnership facilitates the growth of incomparable knowledge, benefits, and applications.

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Innovative Statistical Solutions for P&C Insurance