Using Psicle for simulation based analysis

The Psicle environment is ideally suited to be used as a stochastic modelling engine for simulation based pricing, capital modelling, or reinsurance modelling.

Using the structured data management platform that Psicle provides, the user can import exposure, parameters or results from other simulation models and within a robust analytics environment simulate insurance premiums, losses, economic scenarios, credit defaults, operational losses and any other stochastic factor. These can be combined in simple or complex ways using dependence relationships to derive an overall probability distribution. Several of our libraries are useful in building an insurance based internal model.

SIMULATION LIBRARY

- The Simulation library generates sets of correlated random variables on either a standard distribution (e.g. aggregate claims), a compound distribution (e.g. frequency / severity basis) or Markov chain basis for any number of classes. Most discrete and continuous distribution shapes are available, and the distributions can be shifted, truncated or rescaled as necessary to provide a good fit to the data. A dependency structure can be imposed on the random variable, using a variety of Elliptical or Archimedean copulas. The simulation library can be parameterised with the distributions, or be linked to the curve fitting library where appropriate distributions are fitted to data.
CORRELATOR LIBRARY

• Where required, the Correlator Library breaks down the dependency structure between random variables, and easily imposes a new dependence relationship, using a variety of elliptical or archimedean copulas. This can create a tiered or layered approach to dependencies across factors such as classes, divisions, loss types etc to create the appropriate structure that the user wishes to.

EXPLORER LIBRARY

• The reporting and analysis engines are interactive and engaging and allow the user to understand and interrogate the results of the simulation models. The Simulation Explorer builds up the distribution function for the modelled variables, showing the results at any percentiles using a variety of risk metrics and capital allocation metrics.

• The user can step through the simulations to examine the activity and behaviour of the modelled results at any point.

• Capital allocation and return on capital is available using a variety of risk allocation methodologies, and shows the results across the full distribution.

• Scenarios estimate the impact on the overall distribution of changes to the underlying portfolio, and can be used to interactively and quickly get a view on the possible capital and profitability implications of these changes.

FOR A DEMO OF PSICLE OR FOR FURTHER INFORMATION CONTACT: