

Congrès des Actuaire 20 juin 2014
« Le pilotage aujourd'hui : entre modèles et réalité »

Atelier
« Small data »

Organisatrice : Marie Kratz

Au nom de

CREAR - Centre de Recherche Econo-financière et Actuarielle sur le Risque – ESSEC, & BFA-SFdS : groupe Banque Finance Assurance de la Société Française de Statistique

A. Motivation de l'atelier « Small data »:

Comment procéder à la modélisation lorsque nous sommes confrontés à un manque de données ? Quels problèmes opérationnels se posent lorsque les échantillons de données sur lesquels se baser sont trop petits pour toute validation statistique ? quelle méthode d'extrapolation utiliser ?

Nombre de compagnies sont confrontées à ce problème lors de la gestion de leurs risques et adoptent différentes stratégies pour appréhender et modéliser ces risques. Un panel représentant différentes compagnies, institutions financières (banque et réassurances) comme EDF-nucléaire, a été sélectionné afin de discuter des problématiques et confronter les stratégies et solutions mises en place pour contourner ces problèmes.

B Plan de l'atelier :

- **Exposé de 10mn par chacun des 4 intervenants invités**, afin d'illustrer et d'introduire le problème de modélisation lorsqu'il y a peu de données, par un exemple rencontré au sein de sa compagnie, et de parler des méthodes adoptées pour contourner ce problème.
 1. Frédéric Schwach (Actuaire IA), responsable des réserves P&C de l'actuariat groupe, SCOR
 2. Idriss Tchapda Djamen (Dr., Actuaire IA), responsable de l'équipe Transversal Research, BNP Paribas
 3. Jérôme Collet (Dr.), Division R&D, EDF
 4. Peter Middelkamp (Dr.), Head Financial Market and Credit Risk Modelling, SWISS RE Zürich

- **Discussion de 20 mn** entre intervenants et participants, modérée par Marie Kratz

NB : cet atelier aura lieu en anglais, du fait de la participation d'un intervenant non francophone

C Présentation de l'atelier :

1. Frédéric Schwach, SCOR

Regarding P&C reserving and scarce data, F. Schwach will develop 2 aspects:

- Use of benchmark data and method with a priori

- Expert judgment to estimate the P&C reserving distribution especially the volatility parameter. For example, we have adapted a BF based method to estimate the standard deviation (Hybrid Chain Ladder) when we do not have any data on the last diagonal.

2. Idriss Tchabda Djamen, BNP Paribas

I. Tchabda will focus on the diagnosis on issues linked to banks credit portfolios modeling with small data in the context of internal rating based approaches: portfolios with low default probabilities and loss given default. He will also give some insight on the guidelines of bank's supervisors regarding these issues. The last point will be dedicated on some solutions put in place to overcome these issues: expert judgment, bootstrapping approaches and credibility theory.

3. Jérôme Collet, EDF

EDF faces various risks, both by their nature (economic, industrial), by origin and by their frequency (a few occurrences per decade in the first 5-year). J. Collet will speak about:

- unitary risks that are analyzed statistically, using tools of Extreme Value Theory.
- risks studied as a conjunction of small hazards as: risk of electric blackout (regulator requires keeping this risk at about one occurrence per decade), and industrial risk, specifically the nuclear one, wherein the regulator is much more restrictive.

4. Peter Middelkamp, SWISS RE Zürich

P. Middelkamp will focus on operational risk. Swiss Re developed a model over the last three years that makes use of the scarce loss data but is mostly heavily relying on expert judgment. The data is mainly used to benchmark/validate the model.

D Biographies

Speakers



Name Frederic Schwach

Department and unit Head of Group P&C Reserving

Key tasks and responsibilities:

Reserving guidelines, methodologies, tools and procedures;
Reserving input to the economic balance sheet and internal model

Education and experience

Master in Actuarial Science
Member of the *Institut des Actuaire*s
12 years experience, of which 11 years with SCOR



Name: Idriss Tchabda Djamen

Department and unit: Head of Transversal Research at BNP Paribas CIB responsible of quantitative modeling regarding resources and stress testing methodologies,

Education and experience

PhD in Finance
Member of the *Institut des Actuaire*s
External lecturer at ISFA and Univ. Paris 1



Name: Jérôme Collet

Department and unit: R&D division of EDF (catastrophic accidents probabilities; electricity load forecasting; hazards that can impact on EDF industrial management).

Education and experience

PhD in Applied Mathematics, Engineer ENSAE



Name Peter Middelkamp

Department and unit: Head Financial Market and Credit Risk Modelling

Key tasks and responsibilities

Financial market and credit model risk model development
Operational risk model development

Education and experience

PhD in Physics, GARP FRM,
15 years work experience of which 12 years with Swiss Reinsurance Company Ltd

Moderator



Name: Marie Kratz

Department and unit: ESSEC Business School, IDS department, Director of CREAR risk research center, Director of the actuarial track ESSEC-ISUP

Education and experience

PhD in Applied Mathematics & HDR,
specialized in applied probability, extreme value theory and actuarial mathematics on risk
Member of the *Institut des Actuaire*s

