XXVth ASTIN COLLOQUIUM
CANNES, FRANCE, 11-15 september 1994.

The 25th Astin Colloquium was held at the Noga Hilton Hotel in Cannes. The Colloquium was attended by 163 participants with 43 accompanying persons from 22 countries. A welcoming cocktail took place on the Sunday evening at the terrasse Panorama of the Noga Hilton.

Björn AJNE, the Chairman of Astin, presided the opening ceremony on Monday morning. Lionel MOREAU, chairman of the organizing committee, and Pierre PETAUTON, chairman of the scientific committee, gave some precisions about the sessions format. Welcoming addresses were delivered by Mr J. LONGUET representing Mr M. MOUILLOT, mayor of Cannes, and by Mr BERTON, chairman of the Institut des Actuaires Français and also representing the chairman of the Institut des Sciences Financières et de l'Assurance de Lyon.

First invited lecture

Just after the opening ceremony, Mr D. KESSLER, chairman of the Fédération Française des Sociétés d'Assurance, gave the first invited lecture on the topic "L'Actuaire et l'évolution des assurances non-vie". Mr KESSLER detailed the factors explaining the results of the French non-life insurance companies over the last years and examined the new challenges emerging in the non-life insurance market.

First session : Great risks (topic nr 3)

This session, held during the remainder of monday morning, was chaired by C. STOOP and D. SKURNICK, Ch. LEVI reported on the four presented papers.

Z. BENABBOU and C. PARTRAT proposed an alternative to the truncation of the very big claims amounts commonly used for the tariff construction. This alternative consists in using a mixture of two distributions for modelling the claims amounts, the first distribution corresponding to ordinary claims, the second to exceptionnally big claims. W. HÜRLIMAN spoked about the hedging through a reinsurance agreement of the liabilities of an insurer under contracts with a claims dependent bonus provision. S. BERNEGGER, F. KRIETER, P. MEYER and A. BLOCH presented a risk model pemitting the derivation of the fluctuation loading for cat-portfolios with correlated layers and the breaking down of the overall loading between the different reinsurance contracts. J.P. CASANOVA and E. DUBREUIL explained the mechanism of catastrophe insurance futures and options sold on the Chicago Board of Trade, and the strategies available to an insurer for hedging his liabilities through these futures and options.

Second session: Financial stability of a non-life insurance company (topic nr 1)

This session held on Monday afternoon was chaired by D. BLANCHARD and T. CLARKE, R. DE LAROULLERE reported on the four presented papers. B. AJNE and E. JOHANSSON developed expressions for the expected value and the variance of the undiscounted and discounted claims reserves in a model allowing for stochastic variations in both the payment pattern and the interest rate. A. RENSHAW and R. VERRALL presented a generalised linear model for claims reserving producing the same results as the chain ladder technique. L. TRAN VAN LIEU insisted that any tariff decision has to be analysed with reference to the principles of modern corporate finance. J. JANSSEN presented a dynamic stochastic ALM model with assets and liabilities splitted into possibly correlated segments.

Third session: Financial stability of a non life insurance company (continued)

This session, hold on the remaining of Monday afternoon, was chaired by J. P. CASANOVA and M. GOOVAERTS, P. PETAUTON reported on the three presented papers.

W. HÜRLIMANN examined different stability criteria with respect to equity and technical premiums of an insurance company. L. CENTENO and J. ANDRADE E SILVA used the Bühlmann-Straub model to calculate the solvency ratio for some Portuguese non-life insurance companies. D.A. STANFORD and K. J. STROINSKI developed recursive algorithms for computing ruin probabilities at claim instants in the classical Poisson model with phase type distributed claim amounts. The method extends to the case of gamma distributed inter-claim times.

Second invited lecture

The second invited lecture was given by Professor Paul EMBRECHTS on Wednesday morning. Professor EMBRECHTS evidenced the necessity of filling the gap between theory and practice in actuarial science. In fact there must be a constant interaction between these two poles: new questions faced by the practitionners are the source of development of new techniques by the theoricians. Conversely, new techniques are to be brought to the practitionners facing the new questions. Professor EMBRECHTS illustrated this interactive process by some examples (application of Itô's calculus in the field of insurance futures; robust statistics based on a generalisation of Taylor's expansion applied in Credibility theory...).

Fourth session: risk selection and setting premium rates (topic nr 2)

This session, hold on the remaining of wednesday morning, was chaired by M. C. CHEYMOL and C. PATRICK, Ph. MARIE-JEANNE reported on the presented papers. F. BOULANGER developed a bonus-malus system for policies with several correlated covers.

F. BOULANGER and L. TRAN VAN LIEU considered the problem of determining an optimal premium rate taking into account the elasticity of the demand for insurance. J. LEMAIRE and H. ZI simulated and compared with respect of four different

measures the bonus-malus systems in force in 22 countries for third party liability automobile insurance; they used factor analysis to define an "index of thoughness". E. LEVAY exemplified the use of historical data in modelling UK motor business. G. RAMACHANDRAN adressed the problem of determining premium rebates for deductibles which take into account fire protection measures adopted by the insured.

Fifth session : risk selection and setting premium rates (continued)

This session, hold on wednesday afternoon, was chaired by Ph. PICCARD and T. HOYLAND, J.L. BESSON reported on the five presented papers. F. BOULANGER advocated the use of the gamma distribution with random mean for estimating the claim size distribution. D. DANNENBURG compared different credibility estimators in the Hachemeister's regression credibility model. W. HÜRLIMANN established a result by SCHMITTER about the maximal stop-loss variance; he then examined the stop-loss retention minimising the total variance after reinsurance when the cedent and the reinsurer use the same variance principle. A. RENSHAW formulated the two components of the claims process, frequency and severity, by postulating two separate generalised linear models; this makes available other distributions than the classical Poisson distribution for frequencies and the gamma distribution for severities. O. HESSELAGER developed recursions for certain bivariate counting distributions and the corresponding compound distributions.

Sixth session: Speaker's Corner

This session, held on thursday morning, was heavily filled with twelve communications. Unfortunately only a few authors gave a written version of their talk. The authors and the titles of their talks are listed hereunder.

ASTIN General Assembly

The general assembly was held on Wednesday afternoon. It was confirmed that the next colloquium will take place in Louvain (Belgium) in September 1995, just after the Centenary International Congress of the I.A.A. The following ASTIN colloquium will be held in Copenhagen from 1 to 5 September 1996. The 1997 colloquium is expected to take place in August in Cairns, Australia, just before the Centenary of the Institute of Actuaries of Australia.

B. AJNE resigned from his duties of chairman. He will be replaced by J. STANARD. The viceChairman will be J. RANTALA.

An enquiry form about the format of the ASTIN colloquia was distributed and answered by the participants during the colloquium. Some first results from that enquiry were commented by J. STANARD. The answers will of course need a further detailed analysis.

Social programme

The social program consisted of a concert given on Monday evening in the Noga Hilton by the group "Les solistes de Cannes" and by the pianist David LEVY, and a full day tour on Tuesday: we visited a retrospective devoted to G. BRAQUE at the Foundation Maeght, the beautiful 11th century fortified town of Saint-Paul-de-Vence and the Fragonard perfume factory in Grasse. The colloquium dinner took

place on Wednesday evening at the Hôtel Martinez on the Croisette. During the dinner, B. AJNE and P. PETAUTON made an assault of poetry; hereafter are their respective contributions. With this second experience, after a first one in Cambridge, the organizers of the forthcoming colloquia should consider to devote a session to actuarial poems (this should of course not inhibit the poetic accents usually emerging from most of the scientific papers).

There was un Colloque en Cannes
Petauton et Moreau made it fun
Many others be praised
Hard problems we faced
Non-life studies are not zero-one.

(B. AJNE)

Si j'étais un poète et si j'étais galant
J'aurais dû cette nuit complimenter les dames.
Croyez que j'eusse aimer posséder ce talent,
Pour célébrer ici la beauté de la femme.
Laissez-moi, je vous prie, essayer de rimer
Sur un sujet moins noble, un souvenir d'actuaire.
Déjà l'été dernier, notre collègue aimé,
L'éminent Bjorn Sundt, là-bas dans l'Angleterre
Nous avait dit un soir un aimable sonnet,
Lassé de corriger les formules inexactes.
C'était un parapluie qu'on nous avait donné
Qui fut l'inspiration et provoqua cet acte.
Pourtant l'objet là-bas n'était pas singulier
Et voilà qu'en Provence on pleure son absence.
Si le plus mal chaussé c'est bien le cordonnier,
L'assureur en ce jour manque de prévoyance.
Une ombrelle eut au moins évité les pépins.
Sommes-nous à l'abri dans cette salle d'attente?
Noyés sous un sprinkler et sans maillot de bain
Est une circonstance, il est vrai peu fréquente,
Mais dont on aurait dû évaluer le coût.
Mais craignant de lasser votre aimable patience,
Et prenant en pitié les anglophones à bout,
J'arrête en cet instant mon flot d'incohérences
Et mon propos de fin ne sera plus qu'un souhait
De mathématicien qui voit la triste époque.
Puisse le monde enfin, devenir à jamais
Beau comme un théorème à la fin d'un colloque.

(P. PETAUTON)

Warm thanks are due to L. MOREAU, P. PETAUTON and their organizing and scientific committees for this very successfull colloquium.

J.M. Reinhard, Bruxelles

List of papers

Topic 1

B. AJNE & E. JOHANSSON
On the random structure of discounted loss reserves.

L. CENTENO & J. ANDRADE E SILVA
Applying credibility theory to solvency.

W. HÜRLIMANN
On stable insurance business models.

A. RENSHAW & R. VERALL
The stochastic model underlying the chain-ladder technique.

L. TRAN VAN LIEU
La maximisation de la valeur comme objectif de rentabilité et outil de mesure d'une branche d'assurance dommage. Application au marché français de l'assurance automobile.

J. JANSSEN
A dynamic stochastic ALM model for insurance companies.

A. EGIDIO DOS REIS
More about the time to recovery.

D. STANFORD & K. STROINSKI
Recursive algorithms for computing ruin probabilities at claim instants.

Topic 2

F. BOULANGER
Estimation du coût des sinistres.

F. BOULANGER
Systèmes de bonus malus multi-garanties.

F. BOULANGER & L. TRAN VAN LIEU
Détermination du tarif commercial optimal dans un environnement concurrentiel.

D. DANNENBURG
Estimators in the regression credibility model.

W. HÜRLIMANN
From the inequalities of Bowers, Kremer and Schmitter to the total stop-loss risk.

E. KREMER
Robust credibility via robust Kalman filtering.

J. LEMAIRE & H. ZI
A comparative analysis of 30 bonus-malus systems.

E. LEVAY
Use of historical data in UK motor modelling.

G. RAMACHANDRAN
Rebates for deductibles and protection measures in industrial fire insurance.

A. RENSHAW

A note on some practical aspects of modelling the claims process in the presence of covariates.

O. HESSELAGER

Recursions for certain bivariate counting distributions and their compound distributions.

Topic 3

Z. BENABBOU & C. PARTRAT

Grands sinistres et lois mélanges.

W. HÜRLIMANN

Experience rating and reinsurance.

S. BERNEGGER, F. KRIETER, P. MEYER & A. BLOCH

Risk-theoretical fluctuation loading for the case of correlated layers.

J. P. CASANOVA & E. DUBREUIL

Le marché à terme des contrats d'assurance au C.B.O.T.

Speaker's corner

Ch. LEVI & J. F. BEAUTEMS

Couverture d'un portefeuille de traités américains par des contrats à terme "Cat. Nat." du CBOT.

W. HÜRLIMANN

An actuarial selection of orthogonal parameters to the mean.

E. PITACCO

LTC insurance: from the multistate model to practical implementations.

D. E. A. SANDERS

Reserving for catastrophes – the five S'.

J. P. VERLE

Etude de l'évolution des comptes techniques de l'assurance automobile en France.

Ch. GEOFFRAY & G. DUREUIL

Modélisation bivariée de fréquences de sinistres dépendantes.

M. LAPARRA, I. LION & C. PARTRAT

Design and analysis of market prices for the U.S. natural catastrophe excess reinsurance treaties.

L. SIGALOTTI

Equilibrium premium in a bonus-malus system.

L. PICECH

The merit rating factor in a multiplicative rate making system.

G. PARKER

A second order stochastic differential equation for the force of interest.

Ph. ARTZNER

Hedging of insurance contracts.

F. DUFRESNE

The efficiency of the Swiss bonus-malus system.