

## **THE RISK IN FINANCE AND INSURANCE RESEARCH GROUP**

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The activity of the research group «Risk in Finance and Insurance» is concentrated on studying measurement, control and evaluation of institutional risk and insurance risk. The group studies the value and risk of an investment portfolio, and all the other hazards derived from the choice of customers. It was established during the 90s and nowadays it is formed by ten researchers at the University of Barcelona. It is a multidisciplinary group, working in the field of Actuarial Statistics, Insurance Econometrics, Economic Theory and Financial Mathematics.

The econometric methodology is used to evaluate the risk undertaken by a company. We study methods to improve pricing systems and interest rate for credit products (Dionne, Artís and Guillén, 1996, Guillén and Soldevilla, 1996 and Soldevilla and Guillén, 1997). We also develop modeling techniques to detect adverse selection, to control fraud and, finally, to deal with the presence of the asymmetric information in the insurance contract (Artís, Ayuso, and Guillén, 1999, Artís, Ayuso and Guillén, 2002, Ayuso and Guillén, 1999 and Pinquet, Guillén and Bolance, 2002). In this context, the group also focuses on the study of risk in life insurance products and pension schemes (Betzuen, Felipe and Guillén, 1997 and Borras, Guillén, Sánchez, Junca and Vicente, 1999).

Another research area is the choice of a globally optimal portfolio (García Mínguez, 1988 and Oliva Furés and García Mínguez, 1995). We analyze the temporary structure of interest rate and establish how to design the strategies for immunization (Alegre and Fontanals, 1993).

Currently the group is involved in two research projects, SEC2001-3672 «Long Term Care Insurance in Spain: Longevity and Demand for Benefits» and SEC2001-2581-C02-02 «Observatory of Judicial Culture». The first project analyses how the rising longevity of the Spanish population and the changes in social patterns may affect the future demand of long-term health care for the elderly population. Due to disability or a prolonged illness, long-term care is the assistance given when a person is unable to provide for himself or equivalently, when the insured is unable to perform (ADL) activities of daily living. The analysis of longevity together with the study of disabilities and impairments of the elderly population is an outstanding issue in developed countries (Felipe and Guillén, 1998, Felipe, Guillén and Artís, 1998 and Felipe, Guillén and Nielsen, 2001). Statistical data currently available in Spain allow for the prediction and perspectives of both longevity and the demand for health care. In addition the group is

concerned with the pricing of private insurance covering this risk (Séculi, Fusté, Brugulat, Juncá, Rué and Guillén, 2001).

The second research project in which the group is participating aims to study the decision making process of judges in court decisions and to shed some light on the legal and professional problems of novel magistrates. The economic costs of judicial verdicts in insurance claims compensations are specially considered.

The main focus of the research group is mostly on the application of statistical tools. Nevertheless, the adaptation of existing approaches to the kind of problem and data under study often require a great deal of innovation in the methodology and a deep expertise in the use of statistical techniques. Our main field of application usually requires generalised linear models, survival analysis, nonparametric methods and general econometrics (Bolancé, Guillén and Nielsen, 2000, García Minguez and Sáez, 1992, García Minguez and Sáez, 1993, Guillén and Martín, 1996, Guillén, Junca, Rue and Aragay, 2000, Lin and Guillén, 1998, Salsas, Guillén and Alemany, 1999 and Upton and Guillén, 1995).

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