The Modelling of Operational Risk: the Experience from the Analysis of the Data Collected by the Basel Committee

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Abstract

Since the year 2001, the Risk Management Group of the Basel Committee has been performing specific surveys of banks’ operational loss data, with the main purpose to get information on the industry operational risk experience. The second loss data collection, in particular, was launched in the summer 2002: the 89 banks participating to the exercise provided the Group with more than 47,000 observations, grouped by the standardised Business Lines and Event Types categories. A summary of the data collected, that focuses on the description of the range of individual gross loss amounts and of the distribution of the banks losses across the business lines/event types categories, was posted in the BIS web-site in march 2003.

The objective of this lecture is to show the main findings of the analysis – detailed in a paper to be posted in the Banca d’Italia web-site later this year – which moves forward respect to that descriptive summary, by investigating the inferential behaviour of those same operational risk data. To this end, a preliminary Business Lines’ data pooling exercise is conducted in order to prevent the confidentiality of the individual banks’ data; then, each Business Line data set is separately investigated by empirical and parametric tools. The work aims to assess, first of all, the sensitivity of conventional actuarial distributions and models stemming from the extreme value theory in the estimate of the severity and frequency of the Business Lines’ extreme losses: the exercise shows that the extreme value model, in its Peaks Over Thresholds representation, well explains the behaviour of the operational risk data in the tail area. Then, by combining the severity and frequency estimates, a bottom-up capital charge figure against the large losses is computed for each Business Line and the contribute of the expected losses to the capital charge evaluated. Finally the ratios between the Business Lines’ capital charges and the corresponding average levels of Gross Income are determined and compared with the regulatory coefficients (so-called Betas) envisaged in the Standardised Approach of the new Basel Capital Accord framework.