



ΠΑΝΕΠΙΣΤΗΜΙΟ ΠΕΙΡΑΙΩΣ

ΣΧΟΛΗ ΧΡΗΜΑΤΟΟΙΚΟΝΟΜΙΚΗΣ ΚΑΙ ΣΤΑΤΙΣΤΙΚΗΣ

ΤΜΗΜΑ ΣΤΑΤΙΣΤΙΚΗΣ ΚΑΙ ΑΣΦΑΛΙΣΤΙΚΗΣ ΕΠΙΣΤΗΜΗΣ

ΠΡΟΣΚΛΗΣΗ

Σας προσκαλούμε στην ομιλία του **Rodrigue Kazzi, Department of Economics and Political Sciences, Vrije Universiteit Brussel, Belgium** η οποία θα διεξαχθεί την **Παρασκευή 15 Σεπτεμβρίου 2023, ώρα 12:00** στην **Αίθουσα 336** (3<sup>ος</sup> όροφος) στο Κεντρικό Κτίριο του Πανεπιστημίου Πειραιώς, με θέμα:

### **Model uncertainty assessment for unimodal right-skewed distributions**

**Abstract/Περίληψη:** Decisions such as setting premiums or capital requirements (Basel IV, Solvency II) are driven by risk measures of the portfolio loss distributions. However, the inherent uncertainty in the adopted model can lead to significant changes in the value of a risk measure. A common way to assess this uncertainty is to determine the upper and lower risk bounds, that is, the largest and smallest possible values the risk measure can reach over a set of models that satisfy certain distributional assumptions.

The literature has so far offered risk bounds that may be deemed impractical for many actuarial applications. This impracticality arises because either a limited set of distributional assumptions are considered – leading to overly wide risk bounds – or some assumptions are difficult to trust, rendering the bounds unsuitable for many scenarios of interest.

In this talk, we aim to derive risk bounds encompassing a broader set of distributional assumptions pertinent to actuarial modelling. The assumptions considered regarding the shape of loss distribution include unimodality, right-skewness, and symmetry following a concave transformation (e.g., log transformation or some power transformations) to the loss distribution. We also allow for the inclusion of additional assumptions about the loss distribution, including the moments, the range of potential loss values, moments on the distribution following a concave transformation, quantile-based information (e.g., knowledge of a particular quantile or the interquartile range), and trimmed moments, among others.

While the primary focus of the talk is the risk bounds for the (Range) Value-at-Risk, we also show how to calculate bounds for several other measures, including expected utilities and probability inequalities. The new risk bounds allow for a wide range of distributional assumptions to be incorporated, leading to significantly tighter bounds than the ones in the literature. The findings are illustrated using real-world datasets.