

The **Working Group on Risk - CREAR**, with the support of the IDS dpt, Institut des Actuaire, LabEx MME-DII, and the group BFA (SFdS), has the pleasure to invite you to the seminar by:

Prof. Liudas GIRAITIS

Queen Mary University London, UK

“Robust Tests for White Noise and Cross-Correlation”

at ESSEC La Défense (CNIT) – Room 202, 12:30-1:30pm

Commonly used tests to assess evidence for the absence of autocorrelation in a univariate time series or serial cross-correlation between time series rely on procedures whose validity holds for i.i.d. data. When the series are not i.i.d., the size of correlogram and cumulative Ljung-Box tests can be significantly distorted. This paper adapts standard correlogram and portmanteau tests to accommodate hidden dependence and non-stationarities involving heteroskedasticity, thereby uncoupling these tests from limiting assumptions that reduce their applicability in empirical work.

To enhance the Ljung-Box test for non-i.i.d. data a new cumulative test is introduced. Asymptotic size of these tests is unaffected by hidden dependence and heteroskedasticity in the series. Related extensions are provided for testing cross-correlation at various lags in bivariate time series. Tests for the i.i.d. property of a time series are also developed. An extensive Monte Carlo study confirms good performance in both size and power for the new tests. Applications to real data reveal that standard tests frequently produce spurious evidence of serial correlation.

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For any information:
Melissa Bagri – 0134433797 – bagri@essec.edu
<http://crear.essec.edu/working-group-on-risk>





Prof. Liudas GIRAITIS

Queen Mary University, LONDON

School of Econometrics and Finance

Liudas Giraitis is Professor at the School of Econometrics and Finance, Queen Mary University of London. His research bridges the fields of econometrics, statistics and probability theory, with a substantial emphasis on time series analysis. He has published numerous articles in the leading statistical and econometric journals. In ongoing work, he is exploring time varying random coefficient models, their properties and estimation methods, forecasting under ongoing change approaches and heteroscedasticity and mean-variance constancy testing procedures. Liudas has received his PhD in Applied Mathematics (probability & statistics) from Vilnius University. He has gained his research experience working at Heidelberg and Boston Universities and London School of Economics.

