PhD studentship (Full-time)

Institution	Xi'an Jiaotong-Liverpool University, China
Department	Department of Statistics and Actuarial Science
Supervisors	Principal supervisor: Dr Jiajun Liu (XJTLU, Department of Statistics and Actuarial Science) Co-supervisor: Dr Yi Zhang (XJTLU, Department of Mathematical Science) Co-supervisor: Professor Yang Yang (Nanjing Audit University, Department of Statistics/Honorary Professor in UoL)
Application Deadline	Open until the position is filled
Funding Availability	Funded PhD project (world-wide students)
Project Title	Systemic Risk under Extreme Losses
Contact	Please email jiajun.liu@xjtlu.edu.cn (XJTLU principal supervisor's email address) with a subject line of the PhD project title

Requirements:

The candidate should have a first class or upper second class honours degree, or a master's degree (or equivalent qualification), in Actuarial Science/Statistics/Applied Math but not limited to.

Evidence of good spoken and written English is essential. The candidate should have an IELTS score of 6.5 or above, if the first language is not English. This position is open to all qualified candidates irrespective of nationality.

Degree:

The student will be awarded a PhD degree from the University of Liverpool (UK) upon successful completion of the program.

Funding:

The PhD studentship is available for three years subject to satisfactory progress by the student. The award covers tuition fees for three years (currently equivalent to RMB 80,000 per annum). The scholarship holder is expected to carry out the major part of his or her research at XJTLU in Suzhou, China. However, he or she is eligible for a research study visit to the University of Liverpool of up to three months, if this is required by the project.

Project Description:

Systemic risk (SR) is considered as the risk of collapse of an entire financial system, which has played a significant role in explaining the recent financial turmoils from the insurance and financial industries. In this project, we first employ a statistical procedure in analyzing market price data, with a focus in empirical studies on the heavy-tailedness of tail risks, extreme dependence across financial markets, and joint expected shortfall on financial risks. Based on the results of empirical studies, we consider the asymptotic behavior of the SR for portfolio losses in the model which allows for heavy-tailed primary losses and are equipped with a wide type of dependence structures. Based on the asymptotic analysis of SR for portfolio losses, several simulation experiments are conducted. This project provides an ideal framework for addressing both extreme risks and dependence.

This is a cutting-edge research project in the field of quantitative risk management and EVT. Systemic risk and catastrophe risk management are hot topics among financial institutions, insurance, and reinsurance companies and the literature is growing fast. As a lesson from the financial crisis of 2007 -2009, modeling Systemic risk must carefully address extreme risks, which result from the marginal tails of and the tail dependence between extreme losses. However, due to the sparsity of data in the tail, the traditional statistic method is no longer as effective, which lends us insights in modeling and simulation via ETV approaches. The proposed research would provide such guidance. It is generally novel because the area of modelling systemic risk under EVT has seen relatively little activity, and in particular nothing that attempts to explore under the extreme risks. There is also methodological novelty since we propose to use a latent variable model to quantify the systemic risks, which equates both endogenous risk and exogenous risk.

For more information about doctoral scholarship and PhD programme at Xi'an Jiaotong-Liverpool University (XJTLU): Please visit

http://www.xjtlu.edu.cn/en/study-with-us/admissions/entry-requirements

http://www.xjtlu.edu.cn/en/admissions/phd/feesscholarships.html

How to Apply:
Interested applicants are advised to email jiajun.liu@xjtlu.edu.cn (XJTLU principal supervisor's email address) the following documents for initial review and assessment (please put the project title in the subject line).
- CV
- Two reference letters with company/university letterhead
- Personal statement outlining your interest in the position
- Proof of English language proficiency (an IELTS score of 6.5 or above)
- Verified school transcripts in both Chinese and English (for international students, only the English version is required)
- Verified certificates of education qualifications in both Chinese and English (for international students, only the English version is required)
- PDF copy of Master Degree dissertation (or an equivalent writing sample) and

examiners reports available

Informal enquiries may be addressed to Dr. Jiajun Liu   (jiajun.liu@xjtlu.edu.cn), whose personal profile is linked below,
https://www.xjtlu.edu.cn/en/departments/academic-departments/mathematical-sciences/staff/jiajun-liu