



**Saïd Business School**

**Senior Research Fellow in Complex Systems  
CABDyN Complexity Centre  
Grade 8  
(£36,715 – £43,840 with discretionary range to £47,905)  
Fixed Term post for two and a half years**

The Saïd Business School has established itself as one of Europe's leading centres for management education and research. It offers undergraduate and postgraduate courses (MSc in Management Research) and a highly regarded Masters in Business Administration (MBA), Executive Masters in Business Administration (EMBA) programmes and a new Masters in Financial Economics (MFE) programme. Further information on the Saïd Business School is available at [www.sbs.ox.ac.uk](http://www.sbs.ox.ac.uk).

**Institute for Science, Innovation and Society**

The Institute for Science, Innovation and Society researches and informs the key processes of social and technological innovation that are critical to the 21st century and beyond. Through its four research areas – Complex Systems, Science and Technology Studies, Governance, Accountability and Innovation, and Futures, the Institute aims to influence the course of technological and social change through the engagement of highest quality scholarship with key decision-makers in business, government, and civil society. Based at Oxford's Saïd Business School, one of Europe's youngest and most entrepreneurial business schools, the Institute is also part of the James Martin 21<sup>st</sup> Century School. Further information on the Institute for Science, Innovation and Society is available at <http://www.insis.ox.ac.uk>

**The CABDyN Complexity Centre**

CABDyN was established with start-up funding from the EPSRC in 2003 in order to coordinate interdisciplinary research in the area of complex systems, with the Saïd Business School playing a key role. Over ten departments within the University of Oxford are currently involved in CABDyN, and the disciplines represented span the social, life, physical, mathematical and engineering sciences. CABDyN's research focuses on the structural, dynamic, and functional properties of network systems in different application domains, and uses techniques grounded in statistical physics and agent-based modelling to develop a better general understanding of how such complex systems behave. By developing new frameworks and methods for analysing and modelling complex and dynamic networks in the natural and social world, CABDyN also aims to identify general rules which can be incorporated into the design and management of complex technical, socio-technical and socio-economic systems. Further information on CABDyN is available at <http://www.cabdyn.ox.ac.uk>

We now seek to recruit a Senior Research Fellow in Complex Systems.

**The European Commission Framework 7 Future and Emerging Technologies Open Scheme**

The advertised post is part of a new project entitled "Forecasting Financial Crises: Measurements, Models and Predictions" (FOC-II), which is funded under the European Commission's Framework 7, Future and Emerging Technologies Open Scheme.

The project, coordinated by Professor Guido Caldarelli of the National Research Council of Italy (CNR), involves – an interdisciplinary consortium of computer scientists, physicists, economists and policy makers seeking to develop novel approaches to understanding and forecasting systemic risk and global financial instabilities. By leveraging expertise in different disciplines, FOC-II aims to provide an integrated and network-oriented approach to these problems. First, FOC-II will develop and test a novel theoretical framework to measure systemic risk in global financial markets and financial networks. FOC-II will deliver a collaborative ICT platform for monitoring systemic fragility and the propagation of financial distress across institutions and markets globally. This will allow experts to evaluate algorithms and models for forecasting the financial crises, and will also provide new tools for interactive visualisation of different future scenarios. In addition to the University of Oxford and CNR, FOC-II involves the following consortium partners: City University London, ETH Zürich, European Central Bank, Fundació Barcelona Media (Universitat Pompeu Fabra), and Università Politecnica delle Marche. The project work at the University of Oxford will be conducted in close collaboration with HSBC Global Research.

This post is funded for 2.5 years, ideally commencing 1<sup>st</sup> January 2011, or as soon as possible thereafter.

### **Duties and Responsibilities**

The Senior Research Fellow in Complex Systems will be based at the Saïd Business School under the direction of Dr Felix Reed-Tsochas, James Martin Lecturer in Complex Systems (Institute for Science, Innovation and Society; CABDyN Complexity Centre). As a part of the collaborative arrangements with HSBC, the postholder should also expect to spend significant periods of time at the offices of HSBC in London. Since the project involves a European consortium with partner institutions in Germany, Italy, Spain and Switzerland, the postholder needs to anticipate making at least 2 European research visits per annum.

The responsibilities of the Senior Research Fellow in Complex Systems include:

- Undertaking the following detailed research activities:
  1. Acquire within a short period of time the ability to manage, integrate, validate and analyse different large-scale financial datasets used in this project, with particular emphasis on the FX data provided by HSBC.
  2. Develop novel metrics to characterise fragility and instabilities in large-scale financial networks.
  3. Contribute to the development of agent-based or stochastic models of the propagation of financial distress across institutions and markets, which can be tested using the empirical datasets available to the project consortium.
  4. Integrate specific research findings with the work of all project partners.
  
- Undertaking the following management activities of the research project:
  1. Oversee the day to day management of the project, monitoring progress against the milestones and deliverables outlined in the work plan and highlighting any risks and issues to the Principal Investigator when appropriate.
  2. Ensure that the project budget remains on track, in consultation with the Principal Investigator and with the assistance of the CABDyN Administrator.
  3. Contribute to meeting the training and development needs of graduate students affiliated with the CABDyN Complexity Centre.
  
- Present research results at international workshops and conferences.
- Co-author articles for publication in leading peer-reviewed journals in different disciplines.
- Contribute to the wider activities of the Institute for Science, Innovation, and Society and the CABDyN Complexity Centre as appropriate.

The post holder will undertake any other such duties as may be required (appropriate to the grade).

### **Selection Criteria**

1. Doctorate in the biology (biological networks), computer science, economics, engineering, mathematics, physics or quantitative sociology (social network analysis) from major research university.
2. Postdoctoral training in complex systems and networks, with a proven track record of serious interdisciplinary collaboration and engagement.
3. Track record of high-quality peer-reviewed publications on complex systems and networks. For candidates at an early stage of their career a minimum of one publication in an internationally leading, high impact journal is required, with strong evidence that further publications at this level will be forthcoming. For candidates with more than two years of postdoctoral research experience, a minimum of two publications in top tier journals (in addition to other publications) would be expected.
4. Demonstrated practical experience of managing and working with large-scale empirical data sets is required. Familiarity with financial datasets, and an understanding of the finance research literature, is desirable.
5. Good programming skills (e.g. C, Java) and familiarity with standard mathematics packages such as Maple, Matlab, or Mathematica, as well as software packages for network analysis. Familiarity with database management software is desirable.
6. The ability to contribute to the organisation of seminars, workshops, and conferences. Experience of giving research seminars on complex systems and networks to an inter-disciplinary audience.
7. Track record of successful grant writing is desirable

For further information or an informal discussion about the post, please contact Dr Felix Reed-Tsochas (01865 288502 or [felix.reed-tsochas@sbs.ox.ac.uk](mailto:felix.reed-tsochas@sbs.ox.ac.uk)).

### **General Conditions**

The appointment will be on a Grade 8 and the starting salary of the successful candidate will be fixed according to experience. If no suitable applicant is forthcoming an appointment on the scale £36,715 - £43,840 with discretionary range to £47,905 (with an appropriate adjustment of duties) may be considered. The appointment will be subject to a six-month probationary period, and is for three years. This is a full-time post equivalent to 37.5 hours per week, the actual distribution of those hours to be agreed. The appointment of the nominated candidate will be subject to the satisfactory completion of a medical questionnaire.

The post holder will be entitled to 38 days holiday (inclusive of public holidays). It is expected that all public holidays and the three working days between Christmas and New Year will be taken.

The policy and practice of the University of Oxford require that all staff are afforded equal opportunities within employment and that entry into employment with the University and progression within employment will be determined only by personal merit and the application of criteria which are related to the duties of each particular post and the relevant salary structure. In all cases, ability to perform the job will be the primary consideration. Subject to statutory provisions, no applicant or member of staff will be treated less favourably than

another because of his or her sex, marital status, sexual orientation, racial group, disability or age.

The Business School will assume that it is free to approach referees at any stage of the application process unless the candidate's application stipulates otherwise. Please state such requirements explicitly alongside the details of the relevant referee(s). All reasonable interview expenses will be reimbursed.

All data supplied by applicants will be used only for the purposes of determining their suitability for the post and will be held in accordance with the principles of the Data Protection Act 1998 and the University's Data Protection Policy.

Applicants should have evidence of their eligibility to work in the UK. Applicants who would need a work visa if appointed to the post are asked to note that under the UK's new points-based migration system they will need to demonstrate that they have sufficient points, and in particular that:

(i) they have sufficient English language skills (evidenced by having passed a test in basic English, *or* coming from a majority English-speaking country, *or* having taken a degree taught in English)

*And*

(ii) that they have sufficient funds to maintain themselves and any dependents until they receive their first salary payment.

Further information is available at:

<http://www.ukba.homeoffice.gov.uk/workingintheuk/tier2/generalarrangements/eligibility/>

To apply send a covering letter indicating how you fulfil the requirements of the post together with a detailed curriculum vitae and the names and complete contact details (including email addresses if possible) of two referees, to [vacancies@sbs.ox.ac.uk](mailto:vacancies@sbs.ox.ac.uk) or to the HR Department at the Saïd Business School, Egrove Park, Kennington, Oxford OX1 5NY.

This is an international recruitment round. Please note that letters of application in the U.K. have to be much more detailed than in some other countries. Applicants are encouraged to address in detail most, if not all, of the points outlined in the selection criteria in their covering letter.

**The closing date is 09:00 (GMT) on Wednesday 10<sup>th</sup> November 2010. It is expected that interviews will be held on Friday 19<sup>th</sup> November 2010**