The Centre de Recherche en Economie et Management - CREM UMR 6211 - recruits several doctoral students with a three-year long contract. This is one of them.

<table>
<thead>
<tr>
<th>Subject / Themes</th>
<th>Financial models, markets and decisions in times of transition</th>
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</thead>
<tbody>
<tr>
<td>Keywords</td>
<td>Finance; financial markets; financial engineering; mathematical finance; financial decisions; transitions; real options.</td>
</tr>
<tr>
<td>Supervisor</td>
<td>MORAUX Franck [<a href="mailto:franck.moraux@univ-rennes1.fr">franck.moraux@univ-rennes1.fr</a>]</td>
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</tbody>
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Pôle thématique du CREM | Comportement, Incertitudes, Responsabilités

Informations administratives

<table>
<thead>
<tr>
<th>Employeur</th>
<th>Université de Rennes 1 (à l’aide d’un financement du ministère de l’Enseignement Supérieur et de la Recherche).</th>
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<tbody>
<tr>
<td>Affectation</td>
<td>Centre de Recherche en Economie et Management CREM UMR CNRS 6211</td>
</tr>
<tr>
<td>Directeur du laboratoire</td>
<td>Fabien MOIZEAU</td>
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<td>Lieu de travail</td>
<td>CREM – IGR-IAE de Rennes 11 rue Jean Macé 35000 RENNES</td>
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<tr>
<td>Adresse professionnelle</td>
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</tr>
<tr>
<td>Directeur Adjoint du laboratoire pour le site d’affectation</td>
<td>Patrick VALEAU 02 23 23 31 18 <a href="mailto:patrick.valeau@univ-rennes1.fr">patrick.valeau@univ-rennes1.fr</a></td>
</tr>
<tr>
<td>Durée du contrat</td>
<td>1er octobre 2022 – 3 ans</td>
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<td>Ecole Doctorale</td>
<td>ED EDGE</td>
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Doctoral Project

Societal concern: If the United Nations identifies 17 Sustainable Development Goals (SDGs) “to save the world”, companies face many challenges that (environmental, social and digital) transitions impose. Today, companies are taking numerous initiatives under pressure from their stakeholders (customers, investors, employees, local authorities, etc.). In France, the 'universal registration document' imposed on listed companies (since July 21, 2019, following the EU regulation 2017/1129) embodies, with its extra-financial headings, this pressure on the management of companies. Finance, which does not escape the problem of transitions, is singularly challenged as to its ability to organize, gather, allocate, manage and distribute the company's resources, risks and revenues in compliance with and/or in service of these new injunctions. This doctoral project, located at the frontier of Asset Pricing and (Quantitative) Corporate Finance, reconsiders the usual financial decisions (of financing, investment, and risk management) in a context marked by Corporate Social Responsibility (Crane et al (2018)), an environment in transition, and stronger inter-organizational collaborations. The topics addressed in this project will depend greatly on the profile and previous background of the recruited doctoral student.

The ideal candidate: His or her profile and background will be decisive for the definition and development of the dissertation, as these two dimensions determine both opportunities and constraints in the choice of issues, problem solving and research design. Having a strong taste for quantitative modeling, the ideal candidate is especially interested in investing his or her energy and commitment in a demanding and rewarding doctoral experience. The expected profile is "open" but the candidate will have to demonstrate knowledge and/or a strong appetite for theory, mathematical problem solving and ideally stochastic processes and numerical computation (including Monte Carlo simulations, etc.). For example, a candidate with a Master's degree in Finance or Risk and Asset Management will need to demonstrate mastery of options theory (financial options and real options) and familiarity with calculus and stochastic processes in Finance. A candidate with a degree in Economics (mathematical economics or financial economics) will also be able to demonstrate skills in quantitative analysis and decision science (game theory). A candidate with a Master's degree in Mathematics, an engineering school (or equivalent) will have an advanced probabilistic culture (especially in continuous time) and will be interested in "the" Finance and the applications of mathematical methods to Finance.

Positioning: The subject, of a theoretical nature, must lead to predictions, recommendations and managerial implications (useful for the management of organizations) in a normative logic. It will lead to mathematical resolutions, important computational developments (simulations, numerical resolutions of PDEs) and, if the data allow it, to empirical investigations (in a hypothetical-deductive approach). The work done in this research starts from the following premises. 1) Traditional contracts, tools, markets, engineering and financial reasoning require unprecedented modernization. 2) This modernization particularly concerns four ingredients of financial reasoning, namely i) the price dynamics considered in the models, ii) the decision criteria, iii) the design of instruments and contracts and iv) the number of stakeholders. In fact, there are many possible studies today that cross 'transitions', 'financial decisions' and these different 'ingredients'.

Working conditions: The doctoral student will be under a 3-year contract with the University of Rennes 1, working at the Center for Research in Economics and Management to carry out this research and write a doctoral thesis. He or she will benefit from the financial, material and scientific support of the laboratory. During the period, the doctoral student is likely to give courses as part of a teaching assignment.

The candidate: Any interested candidate can send to Franck MORAUX (the director of this research) a CV, a letter of motivation indicating the reason for the doctoral project and, without this being an obligation at the first contact, a research project putting forward development tracks. The research project of about 10 pages should involve at least one of the major current transitions (environmental, digital, social, climatic) and a financial decision problem (investment, financing, risk management, etc.), ii) carry out a short literature review, iii) outline the envisaged research methodology, and iv) a provisional agenda.
Indicative bibliography

**Books**

**Examples of references for the environmental transition**

Please consult the webpage of Franck MORAUXT https://perso.univ-rennes1.fr/franck.moraux/
Informations complémentaires

Le CREM est unité mixte de recherche CNRS, Université Rennes 1 et UniCaen. Vous pourrez trouver plus d’informations sur son site: http://crem.univ-rennes1.fr/.

Recherche
Le doctorant sous contrat travaillera au Centre de Recherche en Economie et Management, au sein du pôle thématique Comportement, Incertitudes, Responsabilités (CIR).

Moyens à disposition
Le doctorant sous contrat sera hébergé dans les locaux de l’Institut de Gestion de Rennes (IGR-IAE de Rennes). Il disposera d’un bureau, de ressources informatiques et de tous les moyens apportés par le CREM et l’IGR.

Enseignement
Le doctorant sous contrat pourra se voir proposer des interventions et des enseignements dans les différents diplômes de l’Université de Rennes 1, dont la Faculté de Sciences Economiques ou l’IGR/IAE.

Modalités de candidature
Le calendrier et les modalités de candidature et de sélection sont consultables en ligne sur le site https://theses.doctorat-bretagneloire.fr/edge. Le dépôt des candidatures devra être effectué exclusivement en ligne avant le 22 mai 2022 à 23h59 sur le site https://theses.doctorat-bretagneloire.fr/edge