



Toulouse  
School of  
Economics

**SCOR**  
FOUNDATION FOR SCIENCE

# SCOR Chair Market Risk and Value Creation Activity report 2022



Economics for the common good

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## SCIENTIFIC TEAM

- **Head of the Chair:** Christian Gollier, TSE
- **Co- Head of the Chair:** Stéphane Villeneuve, TSE

### Scientific Council

- M. André Lévy-Lang, Chairman, *SCOR Risk Foundation*
- M. Yassine Lefouili, Director, *TSE-Partnership*
- M. Philippe Trainar, Director, *SCOR Foundation*
- M. Elyès Jouini, Scientific Directory President, *Institut Louis Bachelier*
- M. Louis Eeckhoudt, Professor, *School of Management Lille IESEG*
- M. Xavier Freixas, Professor, *Pompeu Fabra University Barcelona*

### Researchers

- Andrea Attar
- Milo Bianchi
- Helmuth Cremer
- Philippe De Donder
- Jean-Paul Decamps
- Christian Gollier
- Catarina Goulao
- Jean-Marie Lozachmeur
- Pierre Pestieau (*TSE faculty associate*)
- Jean-Charles Rochet
- François Salanié
- Emmanuel Thibault
- Jean Tirole
- Nicolas Treich
- Stéphane Villeneuve



## INTRODUCTION

Since 2008, the SCOR “Risk Markets and Value Creation” Chair has supported theoretical and applied research at TSE on regulation of insurance markets and risk management, combining methods from financial economics, industrial organization and econometrics.

SCOR teams are in constant contact with TSE researchers. At regular intervals and minimum once a year, a steering committee meeting allows researchers to present their results, and SCOR representatives to express their research needs. It also determines the orientation of applied research to meet the needs of SCOR management.

The primary role of the TSE economists is to understand how risk transforms and influences economic decision-making.

The Chair has been renewed in 2020 and the relations between the Toulouse researchers and the SCOR teams have led to the definition of new research themes that we recall below.

One new feature has emerged in recent years: exchanges between TSE researchers and the SCOR team in Dublin. In addition, the bi-annual newsletter/journal showcasing latest research events or news of the Chair celebrates its second year.

## RESEARCH THEMES AND PROJECTS

### A. Behavioral Economics

#### 1. The morality of markets by Jean Tirole

Scholar and civil Society have argued that competition erodes supplier morality by offering consumer choices: "If I don't do it, someone else will". This study establishes a robust irrelevance result, whereby intense market competition does not crowd out consequentialist ethics. It thereby issues a strong warning against the wholesale moral condemnation of markets and procompetitive institutions. Intense competition, while not altering the behavior of profitable suppliers, however may reduce the standards of highly ethical suppliers or non-profits, raising the potential need to protect the latter in the marketplace

## 2. Insurance economics by Nicolas Treich

Most research in insurance economics has assumed that agents are fully rational. The objective of the research project is to explore both theoretically and empirically the impact of behavioral limitations on insurance demand and insurance markets more generally. Indeed, the domain of insurance provides a rich ground for this investigation since it involves (e.g.) decision under risk and uncertainty, long term effects and complexity. Moreover, recent empirical research has identified several puzzle with classical/rational theories in insurance economics, such as underinsurance of catastrophic risks or over insurance of home risks (Sydnor 2010), excessive demand for extended warranties (Abito and Salant 2019), over-reaction to recent events (Dumm et al. 2017), preference for dominated choices in the health domain (Bhargava et al. 2017, Handel and Kolstad 2015), inconsistent choices across different insurance domains (Barseghyan et al. 2011) or puzzling wealth effects (Armantier et al. 2022). Several recent papers stress in particular the importance of regret, confirmatory bias, motivated reasoning and social norms in risky decisions as well as the emotional or psychological reaction to dramatic events such as death or severe accidents that may play a role in life insurance or annuity demand for instance. Finally, an important aspect is to understand the strategic dimensions, as insurance companies may exploit consumers' behavioral limitations, or instead help consumers to make better insurance-related decisions (through "nudges" for instance). Hence, this research project which lies at the interface of insurance and behavioral economics may also help better understand the role of the supply side of the insurance market to exacerbate or instead mitigate those behavioral failures.

## B. Green Challenges for Long-term Investments

### 1. Dynamic Contracts by Stéphane Villeneuve

The extensive literature analyzing the dynamic principal-agent problem has shown that it is important but difficult to design the optimal shape of contracts in a tractable way.

Indeed, optimal contracts in dynamic agency problems are generally defined as complex functionals of a stream of contractible variables, such as revenues. Moreover, theoretical contracts exhibit memory, even in the most commonly used models that assume uncorrelated shocks, which unfortunately prevents them from matching real-world practices. In addition, firms' revenues empirically show long memory and we lack a theoretical framework that justifies the signing of simple tractable contracts in an environment with inter-temporal links across time periods. In this study, we enrich the Holmström and Milgrom modeling framework by going beyond the assumption that the revenues are driven by a Brownian motion and instead consider Volterra Gaussian processes that are a generalization of the standard Brownian motion to

model the output of novel project and to study time-dependent effects. In particular, we study in detail the optimality of linear contracts in end-of-period outcomes within the class of Volterra models.

## 2. The Portfolio of Economic Policies Needed to Fight Climate Change by Christian Gollier

Climate change poses an existential threat. Theoretical and empirical research suggest that carbon pricing and green R&D support are the right tools, but their implementation can be improved. Other policies, such as standards, bans, and targeted subsidies, also all have a role to play, but they have often been incoherent, and their implementation is delicate.

## C. Health Economics and Aging

### 1. Longevity, dependence and bequests

It is hard not to associate dependence and bequests to the extent that the occurrence of dependence tends to deplete accumulated wealth and to decrease the amount of bequests. In our research we have analyzed the combined effect that mortality risk and dependence probability may have on the design of policy.

### 2. Old age or dependence. Which social insurance?"

In recent decades, there has been an increase in life expectancy and a rapid increase of the very senior dependency ratio in developed countries. The objective of the research project is to examine the optimal levels of public pensions and public long-term care (LTC) insurance. According to the most reasonable estimates of correlations among individual incomes, risks of mortality and dependency, the research shows that it is always desirable for a utilitarian social planner to have a balanced budget increase in LTC benefits at the expense of public pension benefits, until the cost of LTC is fully covered. This is true with or without liquidity constraints. For a Rawlsian planner, the balance between the two schemes depends on a comparison of the ratio of the survival probability to the dependence risk of the poor with its population average.

### 3. Long term and health hazard

The covid pandemic has led to a drastic questioning of our social protection system. We have shown that in case of a pandemic the optimal policy is closely linked to the welfare criterion (utilitarian or egalitarian). We have also shown that in a number of European countries the mismanagement of nursing homes was responsible for what has been called excess mortality.

# SUMMARY OF THE ACTIVITIES FUNDED BY THE CHAIR

## A. Workshops and meetings involving TSE researchers and SCOR Team

**January 28, 2022:** SCOR-TSE Workshop on Long-term Care and Aging 14.00-18.00  
*This workshop had to be an online event due to the surge of the Omicron variant.*



On January 28, the SCOR-TSE Workshop on Long-Term Care and Aging showcased some of the latest economic research in this field. As the keynote speaker, Pierre Pestieau (University of Liège) delivered an overview of “The economics of long-term care”. Besides Mathieu Lefebvre and Tatiana Koreshkova, to whom we return below, Holger Strulik (University of Goettingen) examined “Optimal demand for medical and long-term care”. Chiara Canta (Toulouse Business School) discussed “Family bargaining and the gender gap in informal care” and Jean-Marie Lozachmeur (TSE) presented his work on “Gender wage and longevity gaps and the design of retirement systems”. Introducing the online event, SCOR Foundation Director, Philippe Trainar welcomed the contribution of Toulouse economists and called for more government action.

## B. Conferences scheduled by the Chair for 2022

**October 20-21, 2022:** Annual conference on Risk Market and Value Creation



Presentations on the opening morning of the annual conference included Thomas Dohmen (University of Bonn) on the validity of ‘Survey Measures of Risk Preferences’, Stéphane Loisel (University of Lyon)

on the challenges of longevity risk, and Caroline Hillairet (ENSAE-Paris Tech, CREST) on sustainable pension policy. In the afternoon, François Salanié (INRAE, TSE) focused on the delay following a tipping point before it triggers catastrophe. How might this impact optimal policies? Meanwhile, Julia Holzapfel (University of Munich) examined the use of genetic and behavioral information for pricing insurance contracts. Stéphane Villeneuve concluded this first day by presenting his research on Gaussian agency problems with memory and linear contract. Highlights on Day 2 included Christian Gollier (TSE) on ‘The Discounting Premium Puzzle’ and Patrick Pintus (University of Aix Marseille) on the use of population data to track pandemics and assess vaccines in real time. Joël Shapiro (University of Oxford) concluded the event by presenting his research into the impact of stress

tests on banks' lending decisions. In this newsletter, we feature in-depth exchanges with two TSE contributors to the event: David Martimort explores whether the precautionary principle is a useful guide for society, and Jean-Charles Rochet examines the darker side of digital insurance.

## C. Published works and presentations

### 1. Articles in peer-reviewed journals

**Stéphane Villeneuve**, and **Jessica Martin**, "Risk-Sharing and optimal contracts with large exogenous risks", *Decisions in Economics and Finance*, 2023, forthcoming

X. Flawinne, M. Lefebvre, S. Perelman, **P. Pestieau** and J. Schoenmaeckers, "Nursing Homes and Mortality in Europe: Uncertain Causality", *Health Economics*, 32, 1-21, 2023.

**Jean-Paul Décamps**, and **Stéphane Villeneuve**, "Learning about profitability and dynamic cash management", *Journal of Economic Theory*, vol. 205, n. 105522, October 2022

**Philippe De Donder**, **Bertrand Achou**, **Franca Glenzer**, and **Minjoon Lee**, "Nursing home aversion post-pandemic: Implications for savings and long-term care policy", *Journal of Economic Behavior and Organization*, vol. 201, September 2022, pp. 1-21

**Andrea Attar**, **Thomas Mariotti**, and **François Salanié**, "Regulating Insurance Markets: Multiple Contracting and Adverse Selection", *International Economic Review*, vol. 63, n. 3, August 2022, pp. 981-1020

**Chiara Canta** and **Helmuth Cremer**, "Asymmetric information, strategic transfers and the design of long-term care policies", *Oxford Economic Papers*, 2022

**Nicolas Treich**, "The Dasgupta Review and the problem of anthropocentrism", *Environmental and Resource Economics*, March 2022

**Pierre Pestieau**, "Optimal lockdown and social welfare", (with Gregory Ponthière), *Journal of Population Economics*, 35, 241-268, 2022

M.L. Leroux and **P. Pestieau**, "Age-related taxation of bequests in the presence of dependency risk", *Journal of Public Economic Theory*, 24, 92-119, 2022.

S. Fan, Y. Pang and **P. Pestieau**, "Investment in Children, Social Security, and Intragenerational Risk Sharing", *International Tax and Public Finance*, 29, pp. 237-255, 2022.

M. Fleurbaey, M.L. Leroux, **P. Pestieau**, G. Ponthière and S. Zuber, "Premature Deaths, Involuntary Bequests and Fairness", *Scandinavian Journal of Economics*, 124, pp.709-743, 2022.

Y. Nishimure and **P. Pestieau**, "Old age or dependence. Which social insurance?", *Journal of Public Economic Theory*, Volume 24, 635-854, 2022.



**Helmuth Cremer and Jean-Marie Lozachmeur**, Coinsurance vs. copayments: reimbursement rules for a monopolistic medical product with competitive health insurers, *Journal of Health Economics*, 84, 2022

**Pierre Pestieau**, “Age-related taxation of bequests in the presence of dependency risk”, (with M-L Leroux), *Journal of Public Economic Theory*, 24, 92-119, 2022

**Pierre Pestieau**, “Investment in Children, Social Security, and Intragenerational Risk Sharing”, (with Simon Fan and Yu Pang), *International Tax and Public Finance*, 29, pp. 237-255, 2022

**Pierre Pestieau**, “Premature Deaths, Involuntary Bequests and Fairness”, (with Marc Fleurbaey, Marie-Louise Leroux, Gregory Ponthiere and Stephane Zuber), *Scandinavian Journal of Economics*, 124, pp.709-743, 2022

**Pierre Pestieau**, “Old age or dependence. Which social insurance?” (with Y. Nishimura), *Journal of Public Economic Theory*, Volume 24, 635-854, 2022

## 2. Working papers

**Christian Gollier** and Frédéric Cherbonnier, “*Fixing our public discounting systems*”, March 2023

**Christian Gollier** (with Richard E. Kihlstrom), “*Recursive asset pricing with non-recursive preferences*”, March 2023

**Jean Tirole, and Christian Gollier** (with Olivier Blanchard), “*The Portfolio of Economic Policies Needed to Fight Climate Change*”, February 2023

**Jean Tirole** (with avec Mathias Dewatripont), “*The Morality of Markets*”, November 2022

**Christian Gollier** (with Jiakun Zheng et Frederick van der Ploeg), “*The Discounting Premium Puzzle: Survey evidence from professional economists*”, TSE Working Paper, n° 22-1345, June 2022, revised September 2022

**Stéphane Villeneuve, and Eduardo Abi Jaber**, “Gaussian Agency problems with memory and Linear Contracts”, TSE Working Paper, n. 22-1363, September 2022

**Chiara Canta, and Helmuth Cremer**, “Family bargaining and the gender gap in informal care”, TSE Working Paper, n. 2022-1352, August 2022

**Christian Gollier** and Frédéric Cherbonnier (with Aude Pommeret), “*Stress discounting*”, July 2022

**Philippe De Donder, Marie-Louise Leroux and François Salanié**, “Advantageous selection without moral hazard (with an application to life care annuities)”, TSE Working Paper, n° 22-1334, May 2022

### 3. Books

**Pierre Pestieau**, *The Public Economics of Changing Longevity*, Cambridge University Press, 2022.

**Pierre Pestieau**, *Vivre heureux longtemps. Combien ça coûte ?* (with X. Flawinne), PUF, Paris 2022

### 4. Presentations

**Milo Bianchi** presented his project to Aisling Bradfield on Robo advising in insurance. "Augmenting Investment Decisions with Robo-Advice" (with Marie Brière) in March 2022

**Pierre Pestieau**, UQAM, Montreal, April 25-30, 2022.

**Pierre Pestieau**, World Bank, Washington DC, April 10-May 15, 2022

**Pierre Pestieau**, "Fertility choice with education and ART", Journées Louis-André Gérard-Varet, June 6-8, 2022

**Philippe De Donder** and François Salanié "Advantageous Selection without Moral Hazard" (with M.- L. Leroux), Journées Louis-André Gérard-Varet, June 6-8, 2022

**Helmuth Cremer**, "Who will take care of Granny? Long term care policy design and family decision making", at The International Conference on Public Economic Theory and at the Journées Internationales du Risque, June 2022

**Pierre Pestieau**, "Age and health related non-linear inheritance taxation", International Conference on Public Economic Theory, June 8-10, 2022

**Philippe De Donder** and François Salanié "Advantageous Selection without Moral Hazard" (with an application to life care annuities) (with M.- L. Leroux), Journées Internationales du Risque, July 1, 2022

**Nicolas Treich**, "PET insurance" (with Olivier Armantier), Annual seminar of the EGRIE, September 2022

**Stéphane Villeneuve**, Math Finance Colloquium University Southern California November 13, 2022

**Philippe De Donder** and François Salanié "Advantageous Selection without Moral Hazard" (with an application to life care annuities) (with M.- L. Leroux) Canadian Economic Association, Concordia University, Montreal, November 2022

**Catarina Goulão**, "Living with dependency", Common Good Summit, May 19-20, 2022

## D. 2022 SCOR Prizes

The Risk Markets and Value Creation Chair supports two prizes organized within the framework of the annual seminar of the EGRIE (European Group of Risk and Insurance Economists).

### 1. SCOR-EGRIE Young Economist Best Paper Award

The SCOR-EGRIE prize for the best paper written by a young economist is organized under the responsibility of the "Risk Markets and Value creation" chair of TSE-P and the Dauphine University of Paris. It is sponsored by the SCOR Foundation for Science and the Risk Foundation.

The selection committee is composed of five people representing the following institutions: EGRIE, SCOR, Fondation du Risque, Dauphine, and TSE-P. (Christophe Courbage *Geneva Association*, Elyes Jouini *Université Paris Dauphine*, Philippe Trainar *Fondation SCOR*, Bertrand Villeneuve *Université Paris Dauphine* and Stéphane Villeneuve *Toulouse School of Economics*).

During the 48th annual seminar of the European Group of Risk and Insurance Economists, the prize "SCOR-EGRIE 2022 for the best paper written by a young economist" was awarded to **Lan Zou** (*University of St.Gallen*) for her paper "*The impact of subsidies on deductible choice in health insurance.*"

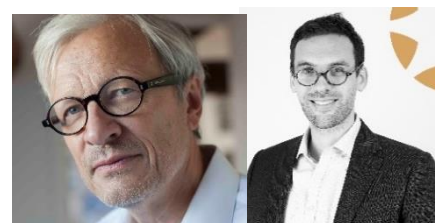


### 2. SCOR – The Geneva Risk and Insurance Review Best Paper Award

During the EGRIE seminar, another prize, also sponsored by the Risk Markets and Value Creation is awarded: the SCOR-Geneva Risk and Insurance Review Best Paper Award for the best paper published in the *Geneva Risk and Insurance Review*.

The selection committee is composed of the editors and associate editors of the *Geneva Risk and Insurance Review* (GRIR).

In 2022, the prize was awarded to **Alexis Louaas** (*Ecole polytechnique & Square Research Center*) and **Pierre Picard** (*Ecole polytechnique*) for their paper "*Optimal insurance coverage of low-probability catastrophic risks*".



## E. TSE-SCOR Foundation for Science Journals

Two newsletters have been edited in 2022. They highlight articles from TSE researchers or, in some cases, researchers from prestigious universities who have been involved in the activities of the Chair, as well as prizes, past or upcoming events, or any other news related to the collaboration between TSE and the SCOR Foundation for Science.

The two journals were edited in April and December 2022.

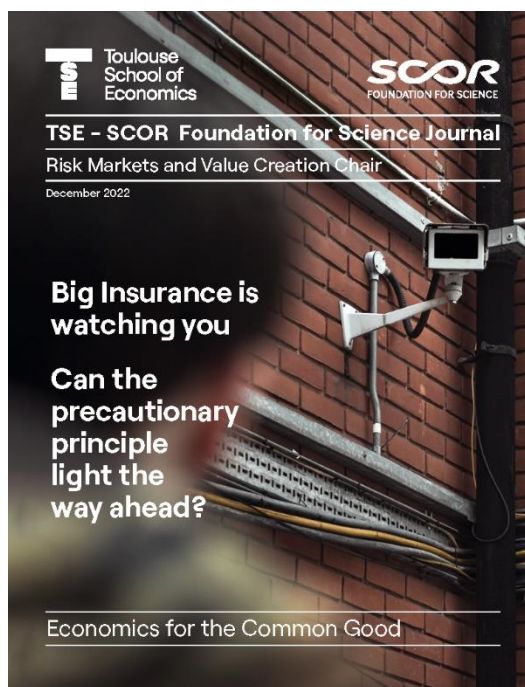
### April

<https://www.tse-fr.eu/sites/default/files/TSE/documents/CenterFinance/Cahiers/journal-tse-scor-april2022.pdf>



### December

<https://www.tse-fr.eu/sites/default/files/TSE/documents/CenterFinance/Cahiers/journal-tse-scor-december2022.pdf>



Journals are also disseminated on TSE's social networks, in the "TSE Reflect" newsletter for practitioners and on the TSE webpage dedicated to the Chair. This website is updated regularly. The support team at TSE has been in touch with Ms Peuillet to ensure the Journals are also accessible on the SCOR Foundation's website.

## APPENDIX

SCOR-TSE Workshop on Long-term Care and Aging, January 28, 2022

Annual conference on Risk Market and Value Creation, October 20-21, 2022



# Workshop on Long Term Care and Aging



**Friday, January 28<sup>th</sup> 2022**

**UTC +01:00**

## **ONLINE WORKSHOP**

Toulouse School of Economics (TSE)

## **CONFERENCE SECRETARIAT**

Florence Chauvet & Valérie Placier

[scor-events@tse-fr.eu](mailto:scor-events@tse-fr.eu)



## FRIDAY, JANUARY 28

- 14:00 – 14.10**      **Introduction** by Philippe Trainar (*SCOR*) & Stéphane Villeneuve (*TSE*)
- 14.15 – 14.45**      **Pierre Pestieau** (*University of Liège*)  
“The economics of long-term care: an overview of recent research”
- 14.50 – 15.20**      **Holger Strulik** (*University of Goettingen*), Johannes Schünemann  
(*University of Fribourg*) and Timo Trimborn (*University of Aarhus*)  
“Optimal demand for medical and *long-term care*”
- 15.25 – 15.55**      **Mathieu Lefebvre** (*Aix Marseille School of Economics*), Xavier Flawinne  
(*University of Liège*), Sergio Perelman (*University of Liège*), Pierre  
Pestieau (*University of Liège*) and Jérôme Schoenmaeckers (*University of  
Liège*)  
“Nursing homes and mortality in Europe: uncertain causality”
- 16.00 – 16.15**      **Break**
- 16.20 – 16.50**      **Tatyana Koreshkova** (*Concordia University*) and Minjoon Lee  
(*University of Carleton*)  
“Long-term care choice in equilibrium: Implications for public policies”
- 16.55 – 17.25**      **Chiara Canta** (*Toulouse Business School*) and Helmuth Cremer (*TSE*)  
“Family bargaining and the gender gap in informal care”
- 17.30 – 18.00**      **Jean-Marie Lozachmeur** (*TSE*), Francesca Barigozzi (*University of  
Bologna*) and Helmuth Cremer (*TSE*)  
“Gender wage and longevity gaps and the design of retirement systems”

# Annual Conference on Risk Markets and Value Creation

**October 20–21, 2022**

## **CONFERENCE VENUE**

Toulouse School of Economics  
Auditorium 3 Jean-Jacques Laffont (ground floor)  
1 esplanade de l'université  
31000 Toulouse, France

## **ORGANIZING COMMITTEE**

Jean-Paul Décamps, Toulouse School of Economics  
Stéphane Villeneuve, Toulouse School of Economics  
Philippe Trainar, SCOR Foundation for Science

## **CONFERENCE SECRETARIAT**

Valérie Placier & Florence Chauvet  
**Email:** [scor-events@tse-fr.eu](mailto:scor-events@tse-fr.eu)





## Thursday, October 20

- 08.30 – 09.20**                    **Registration**
- 09.20 – 09.30**                    **Welcome words by Stéphane Villeneuve**
- 09.30 – 11.10**                    **SESSION 1    Chair: Nicolas TREICH**
- **09.30 – 10.20:**                **Thomas DOHMEN (University of Bonn)**  
    *«Survey Measures of Risk Preferences: Validity, Stability, and Predictive Power»*
  - **10.20 – 11.10:**                **Stéphane LOISEL (University of Lyon)**  
    *«Understanding, Modeling and Managing Longevity Risk: Key Issues and Main Challenges»*
- 11.10 – 11.30**                    ***Break***
- **11.30 – 12.20:**                **Caroline HILLAIRET (ENSAE-Paris Tech, CREST)**  
    *«Time-consistent Pension Policy with Minimum Guarantee and Sustainability Constraint»*
- 12.20 – 14.00**                    ***Lunch***
- 14.00 – 15.40**                    **SESSION 2    Chair: Jean-Paul DECAMPS**
- **14.00 – 14.50:**                **François SALANIE (INRAE, Toulouse School of Economics)**  
    *«Catastrophes, Delays and Learning»*
  - **14.50 – 15.40:**                **David MARTIMORT (Toulouse School of Economics)**  
    *«Acting in the Darkness: Some Foundations for the Precautionary Principle»*
- 15.40 – 16.00**                    ***Break***
- 16.00 – 17.40**                    **SESSION 3    Chair: Thomas MARIOTTI**
- **16.00 – 16.50:**                **Julia HOLZAPFEL (LMU Munich)**  
    *«Classification Risk in Health Insurance: The Interaction of Genetics, Prevention, and Insurance»*
  - **16.50 – 17.40:**                **Stéphane VILLENEUVE (Toulouse School of Economics)**  
    *«Gaussian Agency Problems with Memory and Linear Contract»*
- 19.30**                                **Conference dinner (by invitation only)**

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## Friday, October 21

09.00 – 10.30

**SESSION 4** Chair: Pierre PESTIEAU

- 09.00 – 09.50: **Christian GOLLIER (Toulouse School of Economics)**  
«*The Discounting Premium Puzzle: Survey Evidence from Professional Economists*»
- 09.50 – 10.30: **Patrick PINTUS (University of Aix Marseille)**  
«*A Novel and Parsimonious Approach to Track Pandemics and to Assess Vaccine Effectiveness in Real Time Using Population Data, with an Application to COVID-19 in France*»

10.30 – 11.00

***Break***

11.00 – 12.40

**SESSION 5** Chair: Fabrice COLLARD

- 11.00 – 11.50: **Jean-Charles ROCHET (University of Geneva, Toulouse School of Economics)**  
«*Digital Insurance*»
- 11.50 – 12.40: **Joël SHAPIRO (University of Oxford)**  
«*Stress Testing and Bank Lending*»

12.40 – 14.00

***Final Lunch***



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