Report for the year 2020

IDR Finance Durable et Investissement Responsable

Report for the year 2020

École Polytechnique · Institut Polytechnique de Paris · Toulouse School of Economics · afg association française de la gestion financière

The research projects of the Research Initiative FDIR are run by the Toulouse School of Economics and the Economics department at Ecole Polytechnique. At the initiative of the AFG, the Research Initiative FDIR is made possible for 2020 thanks to the financial support of the following 9 members:

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Fonds de Réserve pour les Retraites (FRR)

HSBC Global AM (France)

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Lyxor AM

Projects undertaken by the Research initiative FDIR (hereafter FDIR) are supervised by an orientation committee chaired by Claude Jouven (ex-chairman of the Fondation HEC), and composed of Rob Bauer (University of Maastricht), Marcel Boyer (Université de Montréal), Jean-Pascal Gond (Cass Business School, City University, London), Isabelle Laudier (Institut CDC pour la Recherche), Henri Tulkens (Université Catholique de Louvain) as well as representatives of the partners of FDIR. The insights and guidance of the members of the orientation committee is gratefully acknowledged.

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Agenda for the meeting of the FDIR Scientific Orientation Committee

12 May 2021

1. Approbation of the 2020 annual report
2. Research projects and activities of FDIR
3. Miscellaneous

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Ordre du jour de la réunion du Comité d’Orientation Scientifique FDIR

12 Mai 2021

- Approbation du rapport annuel 2020
- Projets de recherche et activités de FDIR
- Divers

Research team

Patricia Crifo, Ecole Polytechnique (IdR co-director)
Sébastien Pouget, Toulouse School of Economics (IdR co-director)
Stefan Ambec, Toulouse School of Economics
Geoffrey Barrows, Ecole Polytechnique
Milo Bianchi, Toulouse School of Economics
Catherine Casamatta, Toulouse School of Economics
Sandra Cavaco, University Paris 2 Pantheon Sorbonne & Lemma
Edouard Challe, CNRS & Ecole Polytechnique
Christian Gollier, Toulouse School of Economics
Guy Meunier, INRA Paris & Ecole Polytechnique
Sophie Moinas, Toulouse School of Economics
Jean-Pierre Ponssard, CNRS & Ecole Polytechnique
Sylvaine Poret, INRA Paris & Ecole Polytechnique
Antoine Rebérioux, University of Paris & Ladyss
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Silvia Rossetto, Toulouse School of Economics
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Nicolas Treich, Toulouse School of Economics

Doctoral and post-doctoral students
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Aurélien Bigo, Ecole Polytechnique
Vincent Bouchet, Ecole Polytechnique
Hung-Thuy Nguyen, Toulouse School of Economics
Angel Prieto, Ecole Polytechnique
Ruichen Wang, Toulouse School of Management
Yixin Wang, Toulouse School of Economics
Yuting Yang, Toulouse School of Economics

Main research activity

The research initiative on Sustainable Finance and Responsible Investment («Finance Durable et Investissement Responsable», or FDIR) was launched in 2007, at the initiative of the French Asset Management Association AFG, by Christian Gollier from Toulouse School of Economics and Jean-Pierre Ponssard from Ecole Polytechnique. The inaugural lecture was given by Jean Tirole, the 2014 recipient of the Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel and a prolific contributor to the programme since its inception.

Now co-directed by Sébastien Pouget from Toulouse School of Economics and Patricia Crifo from Ecole Polytechnique, FDIR has been running for thirteen years with about twenty internationally renowned scholars and has produced numerous scientific contributions to our understanding of responsible finance. The table below summarizes the main figures about FDIR, and more detailed information about its achievements is provided thereafter.

FDIR in a few numbers	
FDIR	-> Started in **2007** -> **20+** researchers -> **2** academic institutions: Toulouse School of Economics and Ecole Polytechnique -> **10** current partners: Association Française de la Gestion Financière (AFG), ABN AMRO IS, Amundi AM, Caisse des dépôts, Candriam France, Edmond de Rothschild AM, Fonds de Réserve pour les Retraites, HSBC Global AM (France), La Banque Postale AM, Lyxor AM
Research	-> **4** fields of practical implications (more information offered is below): • Long-term risk valuation • Design and marketing of SRI funds • Governance, CSR and financial performance • Engagement and dialogue -> **35+** academic workshops with partners -> **10+** bilateral scientific meetings with partners -> **100+** scientific studies published -> **100+** presentations in scientific conferences -> **5** books on responsible finance -> **10** scientific conferences organized
Teaching	-> **15+** PhD students -> **10+** courses every year on responsible finance topics (Master Level)
Visibility	-> **20+** articles in popular press (Le Monde, Les Echos, La Tribune, Libération, Financial Times, L'opinion) -> **5** Best PhD Thesis awards from FIR-PRI -> **1** Nobel prize in Economic Science for Jean Tirole -> **1** Peace Nobel prize for Christian Gollier as a member of the IPCC -> **4** Cahiers de l'Institut Louis Bachelier dedicated to FDIR

Information about FDIR objectives and activities are at: https://fdir.idei.fr/

The main objectives of FDIR are to:

- Contribute to objectivizing the arguments to show that the development of sustainable finance and responsible investment is – in today's world – not only necessary but also possible;

- Develop research methodologies allowing to better identify and integrate non-financial criteria into the analysis of value creation;
- Form a world-class scientific team on SRI.

To achieve these objectives, FDIR carries out research around three main topics:

- Long-term ESG performance and risk evaluation,
- Corporate Governance,
- Shareholder engagement.

For the period 2019-2021, the general assembly meeting of the Association FDIR, the researchers involved in FDIR, in conjunction with the sponsors, have defined four high-priority research projects that pertain the three main topics of FDIR. The achievements on these four high-priority projects for the second year (2020) are detailed below.

A) The four high priority research projects

The following section presents the state of development and first results of the four high priority projects defined for the period 2019-2021. These projects have been selected by the sponsors and presented at the Scientific Committee Meeting of the 4 April 2019. The achievements of these high priority projects are presented at workshops with sponsors and discussed in the FDIR final reports.

1) Employees as directors (Catherine Casamatta, TSE and Sébastien Pouget, TSE)

Objective

Should employees be associated with the management of the firm that employs them? What is the impact on firm value of having employees seating at the board of directors? The objective of this project is to exploit recent changes in the French Law to shed light on these long-standing issues.

There are different reasons why the participation of employees at the board of directors can affect firms' strategy, and their resulting market (shareholder) value.

- Employees-directors can for instance have a positive impact on shareholder value if they help overcome CEOs' short-termism and allow the firm to implement more long-term investment strategies. Relatedly, the presence of employees at the board can ensure that information flows smoothly between different levels of the hierarchy. Better information sharing should then lead to more informed board decisions and to a better implementation of these decisions.

- At the opposite, the presence of employees at the board can help top managers develop antitakeover strategies, at the expense of external shareholders. Or, the presence of directors with different objectives and horizons can burden the decision process and result in suboptimal choices. Another situation can be that employees at the board can help improve social performance (say, by reducing turnover or developing human capital), while having a negative or nul impact on shareholder value.

Methodology

Measuring empirically whether and how employees' participation at the board affects firms' outcomes is a difficult task, to the extent that the nomination of employees as directors is an endogenous decision. To circumvent the issue of endogeneity, we exploit an evolution of the French legislation regarding mandatory employees' board representation. The 14 June 2013 Law (resp. the 17 August 2015 Law) imposes mandatory seats for employees for firms employing more than 5000 (resp. 1000) employees in France.

We then need to clarify how to interpret the market reaction to the passing of the law. The market reaction first depends on the impact of the law on equity returns. If having employees at the board increases equity returns in the short run, then firms should already abide to the new legislation and the passing of the law should *not* impact returns. If, instead, having employees at the board increases equity returns only in the long run, it can be that current shareholders, lacking long term engagement, did not designate employees as directors. In that case, the new law should impact equity returns positively. We denote this effect the *"long term channel"*.

Alternatively, it can be that the law is good for employees' well being and company's social climate but not for equity returns. In that case, the impact on the stock price depends on the preferences of the shareholders who control the firm. If a large majority of shareholders do not value employees' well being or social performance, we expect that the market reaction will be negative: The new law is then simply an additional constraint in the shareholders' objective to maximise profit. If, instead, a fraction of shareholders have a social objective in addition to their financial objective, these socially responsible investors (SRI) will increase their demand for shares upon the passing of the new law (as analysed theoretically by Gollier and Pouget 2014). This in turn will increase the stock price. We call this effect the *"social performance channel."*

First results and next steps

We gathered data on all firms listed on the CAC-all tradable index using the Eikon Reuters, Amadeus and Orbis databases. We split this sample in various groups of firms: firms affected by the law ("treated group"), and firms not affected, either because they are already compliant with the new law, or because they fall out of the scope of the law. We first perform an event study for which we compute the abnormal returns of each group using as a benchmark the Fama-French three factors model. For both the 2013 and the 2015 law, we observe a negative market reaction for: i) the entire sample of firms, ii) the treated firms, and iii) the out-of-scope firms. We do not find any significant reaction for firms which are already compliant. To assess more precisely the impact of the law on the treated firms, and compare it to an appropriate control group, we exploit the discontinuity created by the threshold of 10 000 employees and compare the market reaction for firms above and below the 10 000-employees threshold. We document a significant difference in the market reaction for firms employing between 10 000 and 15 000 employees, compared to firms between 5 000 and 9 999 employees. These results indicate that there is no sign of a long-term channel: imposing employees' representatives at the board of directors was viewed by investors as detrimental to shareholder value.

We next collected the ownership structure of each firm to test whether market reactions are different for some categories of firms. We identified separately family firms, and firms with socially responsible investors. This will allow us to test specific hypotheses: if family firms already incorporate employees' well-being in their strategy and decisions, we expect a neutral market reaction. The presence of socially responsible investors will allow to test whether we can identify a social performance channel defined above.

To complement the short run analysis, we also collected data on the evolution of ESG scores as well as layoffs and leverage. The idea is to measure whether the law, by strengthening the bargaining power of employees, has led to a change in the firm's employment or ESG strategy.

We are currently finishing the last empirical treatments and plan to have a working paper to circulate shortly.

2) Employee involvement in corporate decisions (Patricia Crifo, Ecole Polytechnique and Antoine Rebérioux, University of Paris)

Objective

This project questions the determinants and impact on quality and efficiency of governance of employee involvement (or participation) in corporate decisions.

Two main transformations have been taking place over the past decades, leading to an increasing concern for employee participation.

The first transformation concerns the very notion of work itself. From the 1980s onwards, in the United States and then in Europe, new forms of work organization began to develop, aimed at breaking away from a model where work was understood solely in terms of subordination. The promotion of autonomy and the weakening of the hierarchy were seen both as a means of increasing productivity and a way of restoring meaning to salaried employment – establishing a "new spirit of capitalism".

The second transformation concerns the company. The growth of the service sector and technological change have fuelled the development of a functional economy (where the use of a good, rather than the good itself, is offered to the consumer) and an increase in business models based on "intangible" assets that set the company apart from its main competitors. Equally importantly, the relationship between the company and society at large has evolved. The growing realization that our development model is unsustianble, and our increased awareness of the environmental and social damage that economic activity can produce, mean that corporate responsibility is increasingly called upon. Customers, communities, certain investors, and the general public are demanding accountability from companies, who are

finding it increasingly difficult to hide behind the imperatives of financial profitability to justify their actions.
These two transformations have combined to bring the idea of employee participation in decision-making to the fore.
While the idea of employee participation in companies is far from new and has been affected by changes in work organization and technological advances, this multifaceted issue is still evolving and raises many questions.
How can employees be integrated into the governance and decision-making process of companies? What is the relationship between employee participation, performance and the quality of corporate governance? What are foreign countries doing in this field?

First project's methodology and results
The first part of the project consists in understanding the determinant of employee participation around four main questions.

First, what is employee participation?
There are four main forms of employee participation in the company: work organization, salary negotiations, profit-sharing (financial participation), and via governance bodies (co-determination). It is this last form that aims to really involve employees in the company's major strategic choices.
Second the history of employee participation: France vs Europe
France has recently strengthened employee representation on the boards of private companies: the 2019 Pact law now requires 2 directors elected by employees for boards with more than 8 members (1 otherwise). But in Europe, 13 EU Member States ensure that employees have the right to have their interests represented on the board of directors of their company, so contrary to popular belief, this system is not specifically German, but essentially European. And France has only recently adopted this practice, with the law on securing employment enacted in June 2013, while in Germany co-determination has existed since the Weimar Republic and developed after the Second World War.
Third, why relying on employee participation?
It is the awareness of CSR and sustainable development that is leading companies towards greater openness to the expectations of stakeholders, especially employees. By playing a more important role in the company's decision-making, the idea is that employees contribute to the financial and non-financial performance of their company. They oversee day-to-day business operations, participate in the appointment and removal of managing directors and influence investments of strategic importance to the company.
And fourth, the impact of employee participation on company performance
It is rather difficult to estimate empirically and the results are not consensual, however, employee participation should be seen as a performance lever for companies. By involving employees more and combining several types of employee participation (organizational,

negotiation, financial, governance and CSR), companies can count on more productive employees. It's a win-win situation.

Second project's methodology and insights

The second part of the project consists in analyzing the impact of employee involvement in corporate decisions on the quality and efficiency of corporate governance, in particular on executive compensation practices.

Our methodology consists in estimating the impact of reforms aimed at increasing employee board level representation by comparing the results of companies affected by these reforms (in France in particular) with a control group, composed of companies with similar characteristics but not affected by the reform, at the European level.

After a complex phase of data collection from different sources (BoardEx / FactSet / VigeoEiris / Bloomberg) and preparatory work on the database, preliminary results show that employee representation on the board of directors seems to have effects on corporate governance, in particular the indexation of executive bonuses on the CSR performance of the company. These results still need to be studied in greater depth and consolidated.

References

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- Cavaco S., P. Crifo, and A. Rebérioux, 2020, Employee involvement in corporate decisions and executive remuneration, Work in progress

3) Carbon pricing under deep uncertainty (Christian Gollier, TSE)

Objective

Green investments generate social costs and social benefits that need to be compared in order to determine whether they are socially responsible. The problem is that most environmental benefits, such as reducing climate damages in the case of renewable energy, are not only distant in the future (35% of the CO2 emitted today will still be in the atmosphere by 2300), but they are also very uncertain in their intensity. The objective of this project is to consider various ways to take into account this uncertainty when weighting uncertain future environmental benefits with current tangible cost of these investments. It is therefore composed of several projects, which achievements are presented below.

First project's methodology and results (see details in the 2019 report)

A first project was carried out to explore how uncertainty on the evolution of abatement costs (i.e. the costs of switching to technologies that reduce carbon emissions) affects the socially efficient growth rate of real carbon prices. What can be the effect of uncertainty on carbon pricing? Obviously, technologically optimistic models allow for low carbon prices and efforts in the short run by anticipation of the emergence of these low-cost mitigation technologies.

But if technological changes do not materialize, one will have to drastically increase carbon prices to satisfy the intertemporal carbon budget.

To account for uncertainty on the optimal timing of climate efforts and the carbon pricing system that supports it, I develop a two-period "act-then-learn" model in which the dynamically optimal mitigation strategy is endogenously determined under uncertainty about the future abatement cost function, economic growth and carbon budget. I characterize the impact of these sources of uncertainty on the optimal growth rate of expected carbon price, and I realistically calibrate this model. The calibration of the two-period model suggests a *positive climate beta*. This means that it is socially desirable to implement a climate strategy with *a growth rate of expected carbon price that is larger than the interest rate*, thereby allowing to start with a *relatively low carbon price today*.

Second project (2020)'s objective:

To assess further the impact of uncertainty on green projects' valuation, I explore the consequences of *not* using an appropriate discount rate (that is, not using a discount rate that incorporates risk) to value green investments. To do so, I focus on the valuation of public investments. It is indeed an enduring common practice in most western countries to value public investments and policies by measuring the present value of their flow of expected social benefits using a *single* discount rate. Economic theory however prescribes that projects should be valued according to their impact on aggregate risk in the economy. The standard candidate to evaluate the impact of an investment on the risk borne by its stakeholders is its "consumption beta", or simply beta. The beta of a project is defined as the elasticity of its future benefit to changes in future aggregate consumption. The larger the project's beta, the larger its impact on the aggregate risk in the economy. Consider projects which benefits materialise mostly in good states of nature (such as expanding the capacity of energy and transportation infrastructures). These projects have a positive beta. Consider next projects which improve earthquake-resistant construction norms, increase pandemic-treatment capacities, or build a strategic petroleum reserve. Such projects provide benefits in bad states of nature and therefore hedge macroeconomic risk : they have a lower, possibly negative, beta. When governments use the same discount rate to value both projects, they tend to overvalue projects with large benefits in good states, and undervalue projects which hedge against macroeconomic risk. Therefore, it is likely that governments underinvest in projects that hedge against macroeconomic risk. In this project, I estimate the social cost of such a practice. My main finding is that it is large.

Methodology and results:

The dogma of a single discount rate for the public sector has long been supported by the influential Arrow-Lind theorem (Arrow and Lind, 1970), which claims that "the government invests in a greater number of diverse projects and is able to pool risks to a much greater extent than private investors", thereby washing out risk completely. Most people interpreted this result as meaning that all public investment projects should be discounted at the risk-free interest rate. But, as stated by Sandmo (1972), Lucas (2014), Baumstark and Gollier (2014) and the Consumption-CAPM (hereafter CCAPM) theory, this result is valid only for projects with a zero CCAPM beta, i.e., projects which elasticity of future benefits to changes in future aggregate consumption is zero.

To determine the appropriate discount rate, I examine a dynamic model in which investments are endogenously selected in an opportunity set with heterogeneous risk profiles and expected benefits. At the beginning of each period, agents must determine what share of their wealth should be consumed, and which investments should be implemented. The first-best investment rule entails a CCAPM discounting system in which the project-specific discount rate is a linear function of the project’s beta. I calibrate this model and I then compare this dynamic equilibrium to another equilibrium in which the representative agent uses a single discount rate to determine her investment strategy. I show that the absence of risk-adjustment in this procedure has catastrophic effects on intertemporal welfare: the welfare loss of using a single discount rate is equivalent to a permanent reduction in consumption that lies somewhere between 15% and 45%.

Contribution to public debate:
One key message of this project is that the public cost of capital should not be used to uniformly discount all public projects. It also contributes to the debate on the Social Cost of Carbon. In climate economics since the publication of the Stern Review (Stern, 2007), most proponents to the debate used the Ramsey rule (Ramsey, 1928) to evaluate the rate at which future climate damages should be discounted. The Ramsey rule, however, only characterize the rate at which safe benefits should be discounted. The first reference to the necessity to adjust the climate discount rate to the risk profile of the climate damages emerged when the Obama administration convened a commission aimed at making recommendation on the SCC. The Technical Support Document (TSD, Interagency Working Group on Social Cost of Carbon, 2010) used three discount rates: 2.5%, 3% and 5%, this latter rate reflecting "the possibility that climate damages are positively correlated with market returns." Dietz et al. (2018) showed that in the DICE model of Nordhaus (2008), the CCAPM beta of climate damages is close to unity: In the business-as-usual scenario, future climate damages will be larger if the future will be more prosperous. Business-as-usal projects, if valued using a discount rate that is too low, are implemented too often, leading to a level of investment in such projects that is excessive compared to the responsible level. On the other hand, climate-change mitigation projects might suffer from underinvestment. This research investigation is thus another step in the necessary effort to take into account risk in the climate discount rate.

References:

- Gollier, C., 2020, The welfare cost of ignoring the beta, mimeo
- Gollier, C., 2020, The cost-efficiency carbon pricing puzzle, mimeo

4) Impact assessment and SRI: Why and how investors use impact indicators? (Patricia Crifo, Ecole Polytechnique)

Objective

Impact investing comprises a diversity of approaches, from venture philanthropy, place-based financing to conservation and social impact bonds. Although the motivations of impact investors differ -from “impact-first” to “finance-first”- impact investing funds all aim to achieve a significant societal impact. Impact investing finds its roots in the not-for-profit sector and has since strived to maintain its non-financial values. Despite the importance of the societal transformation pursued, many impact measures are primarily chosen for their ability to be easily communicable to the public. Impact assessment practices consequently vary, even if the community hopes to achieve more standardization in the future.

The objective of this project is to analyze the history, motivations and main determinants for impact assessments, and to understand why and how investors use impact assessment methodologies for their socially responsible products.

Three main approaches are proposed.

Methodology and insights from the first project

After several decades of work, academic research on non-financial information has now reached maturity. Yet, much of the literature has tended to focus on the relationship between financial and extra financial performance only. In order to better understand non-financial performance itself, a new research field has recently emerged on the topic of the non-financial impacts (rather than performance) of Socially Responsible Investment (SRI). Faced with the fast development of SRI and the growing interest for the notion of impact, the goal of this first project is to provide a better understanding of the specificities and challenges of impact measurement, particularly for investors. We first explain the different stages of the SRI movement. Then, we discuss three key major issues for measuring impact: 1) measuring non-financial performance; 2) distinguishing between impact assessment and performance measurement and 3) aggregating impact indicators at the level of a fund. Based on this analysis, we offer a conceptual framework designed around the challenges of impact measurement at each step of the process of construction and communication of non-financial information. We expect this framework to help further research on the topic.

Methodology and insights from the second project

This second project analyzes the practices of impact assessment in the French Socially Responsible Investing (SRI) industry. Based on research conducted by the Scientific Committee of the French public SRI label informed by auditions, an online survey, and documentary evidence, the article shows that the meanings and motivations behind impact assessment in the SRI industry are largely different from the practices in impact investing. Yet only the impact investing setting has been envisioned so far by accountants when studying impact, making SRI practices very much unknown despite the importance of their market power. This project addresses this shortcoming by investigating 1) who cares about impact assessment in the SRI industry; 2) why SRI investors want impact assessment; 3) what impact assessment looks like, and 4) what the main reasons are for selecting a particular impact assessment style. Elaborating on this analysis, the article suggests several areas of concern and opportunities for the SRI, impact investing and accounting communities. The recent appropriation of impact assessment by SRI investors indeed indicates that the three communities' interests and success will be increasingly tied to each other.

Methodology and insights from the third project

The ecological emergency calls for a marked reorientation of public and private investments away from harmful activities towards more environmentally-friendly ones. Green finance can contribute to this, provided that it uses tools that adequately account for environmental impacts in the evaluation of investments. In this third project, we discuss how socio-economic calculus, currently used for the evaluation of investment projects by the State and its operators in France, can be useful for private actors willing to integrate the environmental impacts of their investments to a degree consistent with the collective ambition in this area.
We highlight the interest of designing specific and measurable environmental targets, which legitimize and operationalize our collective ambition in the face of today's environmental challenges.

References

- Arjaliès, DL., C. Bouchet, P. Crifo, and N. Mottis, 2020, La mesure d'impact et l'Investissement Socialement Responsable (ISR) : Un tour d'horizon, in "L'entreprise socialement responsable. Perspective multiple : droit, administration et éthique" Ivan Tchotourian et Luc Brès éditeurs, Yvon Blais Editions Canada, forthcoming
- Arjaliès, DL., P. Chollet, P. Crifo, and N. Mottis, 2020, Myths and Realities of Impact Assessment in Socially Responsible Investing: The French Case and its Implications for the Accounting Community, Working paper
- Crifo P., Y. Kervinio, and E. Quinet, 2020, L'intégration des impacts environnementaux dans l'évaluation des investissements privés, *Transitions*, 76-83, forthcoming

B) Workshops and specific activities

Additional objectives of FDIR are to maintain a fruitful dialogue between researchers and sponsors, as well as to disseminate results of academic research to the world of practice.
To fulfill the first objective, the agenda of the workshops with the sponsors has been modified to include sessions in which researchers and sponsors confront the academic and practitioner views on a topic of practical interest. The idea of such workshops is to help sponsors identify relevant theoretical frameworks for their practices, and to help researchers identify relevant practical questions and obstacles to the development of Socially Responsible Investment. One such session was dedicated to "Impact" and the other to "Carbon neutrality".

To meet the second objective, on the one hand, researchers of the Research initiative have been involved in conferences involving the world of practice, and on the other hand, Catherine Casamatta and Patricia Crifo co-edited a special issue on Climate Finance of the Revue d'Economie Financière, to which researchers and FDIR sponsors contributed.

1) Workshops with sponsors

Workshop on 30 January 2020 with Rodolphe Durand (HEC S&O center) and Stéphane Saussier (IAE Paris)

Abstract : Presentations of "Social impact assessment strategy" and "Rémunérer les opérateurs de service public sur leur impact social"

Workshop on 3 June 2020 with Christian Gollier (TSE)

Abstract: Christian Gollier presented his works on carbon neutrality and proposed to analyse the climate crisis in the context of the covid-19 crisis. How does the pandemic alter the prospects for a much-needed ecological transition? How can it be financed? How can the wave of green investments be triggered? What is the role of Europe, the financial markets and consumers? Should we switch to the frugal world we have just tasted in our confinement?

Workshop on 4 November 2020 with Olivier David Zerbib (Tilburg, ISFA and CREST-Polytechnique-ENSAE)

Abstract: David Zerbib presented his work on environmental impact investing. This research shows how green investing spurs companies to reduce their greenhouse gas emissions by raising their cost of capital. Companies' emissions decrease when the proportion of green investors and their environmental stringency increase. However, heightened uncertainty regarding future environmental impacts alleviates the pressure on the cost of capital for the most carbon-intensive companies and pushes them to increase their emissions. The research provides empirical evidence supporting this result by focusing on United States stocks and using green fund holdings to proxy for green investors' beliefs. When the fraction of assets managed by green investors doubles, companies' carbon intensity drops by 5% per year.

Workshop on 27 November 2020 with Stefan Ambec (TSE)

Abstract: Stefan Ambec chaired the committee commissioned by the French Prime Minister to evaluate the consequences on sustainable development of the Trade Agreement between the European Union and the Mercosur. He presents in the workshop the main results of the report prepared for the Prime Minister: composition and methodology adopted by the commission, main impacts expected from the implementation of the Trade Agreement, quantification of the impact in terms of sustainable development, with a specific emphasis on the impact of deforestation in quantifying the carbon footprint of beef imports.

2) Conferences with the world of practice

- The research initiative FDIR was represented in the Climate Finance Symposium organized by the University of Otago, Climate and Energy Finance group on 3-4 December 2020 in New Zealand, with a keynote address by Patricia Crifo, and a paper presentation by Vincent Bouchet

Sustainable finance and managing climate risk are becoming two of the most important issues facing investors and financial regulators. The IPCC notes that limiting global warming to 1.5°C requires annual average investment of around US$ 2.4 trillion. Climate risks to the financial system are profound and can be understood through Mark Carney's taxonomy of physical, transition and liability risks. The Climate and Energy Finance Group (CEFGroup) has welcome papers in all areas of climate, sustainable, energy and carbon finance.

Symposium tracks

The symposium was divided into four broad tracks. Day one had a policy and Asia-Pacific orientation, with less technical policy-oriented research. Day two focused more on conventional empirical and theoretical finance papers, as well as innovative quantitative approaches (GIS modelling, simulation, stress testing, linking climate and financial modes etc.).

Program

Day 1 – A track dedicated to climate and sustainable finance in New Zealand
Day 2 – Climate risk in financial institutions
Day 2 – Papers on ESG, climate, sustainable, energy and carbon finance
Keynote Speakers

- David Broadstock, Energy Studies Institute (ESI), National University of Singapore, Singapore. Topic: Reflections on climate (and green) finance research: Past trends, current orientations, and future priorities
- Nigel Brunel, Director of Institutional Commodities, OMF, New Zealand. Topic: The Emissions Trading Scheme
- Patricia Crifo, Professor at Ecole Polytechnique, France. Topic: Green and sustainable finance: is perfect the enemy of better? Reflections on the French experience
- Sean Kidney, Co-founder and CEO, Climate Bonds Initiative, UK. Topic: Developments in Green Finance

Paper presentation: Vincent Bouchet, Ecole Polytechnique "Climate-related transition risk and the cost of debt in the energy and utilities sectors"; co-authored with P. Crifo

- The research initiative FDIR was represented at the conference organized by the Secretary of State for the Social, Solidarity and Responsible Economy and Finance for tomorrow on “Impact finance: a fad or an underlying trend in sustainable finance?” On 25 March 2021

Program:
9:00 Introductory speech by Olivia Grégoire, Secretary of State for the Social, Solidarity and Responsible Economy
9:10 Introductory remarks by Augustin de Romanet, Chairman of Paris EUROPLACE, CEO of ADP Group

9:15 Round Table 1: Impact finance: towards a definition and a shared vision in France
Introduction and moderation by Thierry Déau, President of Finance for Tomorrow
Speakers
Raphaele Leroy, Head of Engagement/CSR, BNP Paribas,
Laurence Laplane-Rigal, Director of Impact Investing, Amundi
Fanny Picard, President, Alter Equity

10:00 Roundtable 2: The search for good valuation practices capable of offering a new horizon to ESG?
Introduction and moderation by Sandra Bernard Colinet, member of the French Society of Financial Analysts (SFAF) and editor of the report "Investing for sustainable transformation
Speakers
Philippe Taffin, Aviva
Axel Bonaldo, Business Development Director Europe, Impak Finance - IMP method
Laetitia Tankwe, IRCANTEC
Aglaé Touchard Le Drian, Associate Director, Raise Impact

11:00 Roundtable 3: Regulating impact finance, what avenues of reflection for Europe?
Speakers
Alix Faure, Director of responsible investment, AFG
Adrienne Horel-Pagès, Director of sustainable commitment, CSR and communication, LBPAM
Patricia Crifo, Economist, Professor at Ecole Polytechnique, researcher at CREST (CNRS)
Bastien Rosspopoff, Deputy Director of the Legal Expertise, Operational Doctrine and Complex Management Division, Asset Management Division, AMF

11:45 Closing Remarks by Thierry Déau, President of Finance for Tomorrow

- Other conference: Turning points, 10 September 2020

Ecole Polytechnique co-organized an event called "Turning Points", a dialogue between Jo Stiglitz and Thomas Piketty, moderated by Sylvie Kauffmann

Are widening inequalities and the wealth gap at a tipping point? This issue was the starting point of debate between Joseph Stiglitz and Thomas Piketty in a transatlantic dialogue on the COVID-19 pandemic and global economic insecurities, racial disparities and protests, the weakening of democracy, and the U.S. presidential election. Their conversation explored the implications of these converging crises and opportunities for change.

French journalist Sylvie Kauffmann moderated the conversation in English, with simultaneous translation in French (available live on Le Monde.fr and at Zoom link). English and French language versions of the filmed discussion are available at www.maisonfrancaise.org and globalcenters.columbia.edu/paris.

3) Revue d'Economie Financière special issue

A special issue of the Revue d'Economie Financière dedicated to Climate Finance was co-edited by Catherine Casamatta and Patricia Crifo. The issue gathers contributions from academics and practitionners and is specifically addressed to a mixed audience. FDIR contributors include: M. Brière, C. Casamatta, P. Crifo, D. Czupryna, JP Desmartin, C. Gollier, B. Goosens, S. Jallet, S. Pouget, and T. Valli.

Summary of the Special issue:

This special issue combines contributions from academics and practitionners to identify what are the key success factors for finance to contribute to the transition to a low carbon economy: an accurate perception of the actual stakes, a fair assessment of current practices, a willingness to find efficient paths of action under uncertainty, and a humble view of the relevance and impact of past actions. The topic of climate finance is particularly acute as public authorities have framed the recovery plans adopted in response to the pandemic crisis around the fight against climate change. The key challenge is certainly to implement an efficient climate strategy and the questions faced by the financial industry are numerous: how to favour the necessary transition to a low carbon economy? Which practices and what actors should support it? What principles and tools can be provided by academic research in finance and economics? At a very high level, climate finance must encourage the development of more responsible behaviours and develop efficient tools to implement a proper green investment strategy. It must also give full account of its actions, and to do so, build reliable and shared measures of impact. Let us take the example of green bonds. Such financing tools make sense only if one can evaluate precisely the environmental consequences of the projects they finance. Many actors, however, feel that environmental ratings and measures are heterogeneous and hard to compare, if not unreliable. As green bonds issues amounted to $50bn for the month of september 2020 (ie. as much as the total issues for the year 2015), European financial markets count ten different "green" or "sustainable" labels attributed to around 1360 financial products. While these numbers certainly reflect the success of such instruments, they also raise imporant questions: are the amounts issued sufficient to meet the objectives? What is the impact of the number of labels on the functioning of the market? Coudl one think of other instruments or investment strategies to ensure climate transition? The special issue addresses these questions thanks to 17 contributions of researchers, regulators and practitioners

Table of content:

Publications and working papers 2020

Researchers of FDIR have written some of these articles with researchers from other institutions located both in France and abroad.

- Ambec, S., and P. DeDonder, 2020, Environmental policy with green consumerism, TSE working paper
- Ambec, S., and C. Crampes, 2021, Real-time electricity pricing to balance green energy intermittency, Energy Economics 94, n°105074, 2021
- Arjaliès DL., C. Bouchet, P. Crifo, and N. Mottis, 2020, La mesure d’impact et l’Investissement Socialement Responsable (ISR) : Un tour d’horizon, in « L’entreprise socialement responsable. Perspective multiple : droit, administration et éthique » Ivan Tchotourian et Luc Brès éditeurs, Yvon Blais Editions Canada, forthcoming
- Arjaliès DL., P. Chollet, P. Crifo, and N. Mottis, 2020, Myths and Realities of Impact Assessment in Socially Responsible Investing: The French Case and its Implications for the Accounting Community, Working paper.
- Bambauer, D., S., Masconale, and S. Sepe, 2021, Social Networks and Freedom of Association, *U.C. Davis Law Review*, forthcoming
- Bao, L., and S. Moinas, 2020, Green certification, *Work in progress*
- Bianchi, M., and H. Luomaranta, 2020, Agency Costs and Firm Productivity, *Work in progress*
- Bianchi, M., R-A Dana, and E. Jouini, 2020, Equilibrium CEO Contract with Belief Heterogeneity, *Work in progress*
- Bianchi, M., R-A Dana, and E. Jouini, 2021, Shareholder Heterogeneity, Asymmetric Information, and the Equilibrium Manager, *Economic Theory,* forthcoming
- Bleichrodt, H., D. Crainich, L. Eeckhoudt, and N. Treich, 2020, Risk aversion and the value of diagnostic tests, *Theory and Decision* 89, 137-149
- Boissinot, J., C. Casamatta, and P. Crifo, 2020, Finance Climat, Introduction to the special issue, *Revue d’Economie Financière* 138, 11-18.
- Bonnet, C., Z. Bouamra, V. Requillart, and N. Treich, 2020, Regulating meat consumption: How to improve health, the environment and animal welfare, *Food Policy* 97
- Bratton, W., and S. Sepe, 2020, Corporate Law and the Myth of Efficient Market Control, *105 Cornell Law Review 101*
- Brière, M., S. Pouget, and L. Ureche-Rangau, 2020, Do institutional investors vote to curb climate change? An empirical analysis of shareholder meetings, Working paper
- Brière, M., S. Pouget, and L. Ureche-Rangau, 2020, BlackRock vs Norway Fund at Shareholder Meetings: Institutional Investors’ Votes on Corporate Externalities, Proceedings of the Seventh Public Investors' World Bank Conference 2020, pp. 81-108

- Brière, M., S. Pouget, and L. Ureche-Rangau, 2020, Les votes des investisseurs institutionnels sur les externalités produites par les entreprises : le cas de deux investisseurs emblématiques », *Revue d'Economie Financière 138,* Finance Climatique, pp. 119-138
- Brodback, D., N. Guenster, S. Pouget, and R. Wang, 2020, The Valuation of Corporate Social Responsibility: A Willingness-to-Pay Experiment, Working paper
- Carlier, A., and N. Treich, 2020, Valuing directly animal welfare in (environmental) economics, *International Review of Environmental and Resource Economics* 14, 113-152
- Casamatta, C., J. Jaballah, and S. Pouget, 2020, Employees as directors, *Work in progress*
- Casamatta, C., and S. Pouget, 2020, Fund managers' Contracts and Financial Markets' Short-termism, Working paper
- Cavaco, S., P. Crifo, and A. Guidoux A, 2020, Corporate social responsibility and corporate governance: The role of executive compensation programs, *Industrial Relations* 59(2), 240-274
- Cavaco, S., P. Crifo, and A. Rebérioux, 2020, Employee involvement in corporate decisions and executive remuneration, *Work in progress*
- Cremers, M., E. Giambona, S. Sepe, and Y. Wang, 2020, Hedge Fund Activists: Value Creators or Stock Pickers?, Working Paper
- Cremers, M., S. Guernsey, and S. Sepe, 2020, Selection Bias in Corporate Governance: Evidence from Business Combination Laws, Working Paper
- Cremers, M., S. Guernsey, and S. Sepe, 2020, Stakeholder Orientation and Firm Value, Working paper
- Cremers, M., S. Guernsey, L. Litov, and S. Sepe, 2020, Shadow Pills, Visible Pill Policy, and Firm Value, Working paper
- Crifo, P., R. Durand, and JP. Gond, 2020, Le rôle des labels dans la finance verte : construction et régulation d'un marché des labels en France, *Revue d'Economie Financière* 138, 209-223.
- Crifo, P., Y. Kervinio, and E. Quinet, 2020, L'intégration des impacts environnementaux dans l'évaluation des investissements privés, *Transitions*, 76-83, *forthcoming*
- Espinosa, R., D. Tago, and N. Treich, 2020, Infectious diseases and meat production, *Environmental and Resource Economics* 76, 1019-1044
- Espinosa, R., and N. Treich, 2021, Moderate vs. radical NGOs, *American Journal of Agricultural Economics*, forthcoming
- Fisch, J., and S. Sepe, 2020, Shareholder Collaboration, *Texas Law Review 863*
- Gollier, C., 2020, Aversion to risk of regret and preference for positively skewed risks, *Economic Theory* 70, 913–941
- Gollier, C., and O. Gossner, 2020, Group testing against Covid-19, *Covid Economics* 1, 32-42

- Gollier, C., 2020, If the objective is herd immunity, on whom should it be built?, *Environmental and Resource Economics* 76, 671-683. Prepublished in *Covid Economics* 16, 98-114
- Gollier, C., 2020, Cost-benefit analysis of age-specific deconfinement strategies, *Journal of Public Economic Theory* 22, 1746-1771. Prepublished in *Covid Economics* 24, 1-31
- Gollier, C., 2020, Pandemic economics: Optimal dynamic confinement under uncertainty and learning, *Geneva Risk and Insurance Review* 45, 80-93. Prepublished in *Covid Economics* 34, 1-14.
- Gollier, C., 2021, A general theory of risk apportionment, *Journal of Economic Theory*, forthcoming
- Gollier, C., 2020, The welfare cost of ignoring the beta, mimeo
- Gollier, C., 2020, The cost-efficiency carbon pricing puzzle, mimeo
- Guernsey, S., S., Masconale, S. Sepe, and C. Whitehead, 2020, Banking on the Lawyers*,* 6 *The Practice*
- Guernsey, S., S. Sepe, and M. Serfling, 2020, Blood in the Water: The Value of Anti-takeover Provisions During Market Shocks, Working paper
- Hestermann, N., Y. Le Yaouanq, and N. Treich, 2020, An economic model of the meat paradox, *European Economic Review* 129, n°103569
- Lavaine, E., P. Majerus, and N. Treich, 2020, Health, air pollution and animal agriculture » *Review of Agricultural, Food and Environmental Studies* 101, 517-528
- Sepe, S, 2021, Justice in Transactions: A Theory of Contract Law (book review), *Notre Dame Philosophical Reviews*, forthcoming
- Sepe, S., and S. Masconale, 2020, Corporate Conformism, Working Paper
- Sepe, S, and A. Schwartz, 2021, Economic Challenges for the Law of Contract, 37 *Yale Journal on Regulation*, forthcoming
- Treich, N., and Y. Wang, 2021, Public safety under imperfect taxation, *Journal of Environmental Economics and Management* 106, n°102421
- Treich, N., 2020, Cultured meat: Promises and challenges, Working paper

Communication of FDIR achievements and awards

The advances made by the researchers of FDIR have been presented to a wide audience including academic researchers, finance practitioners, and the general public, both in France and abroad. FDIR has been instrumental in allowing for the creation of the knowledge communicated in the various events described below.

1) Communication to finance practitioners

In 2020, FDIR has organized various events during which researchers have presented the implications of their results for CSR and SRI. In particular, 4 workshops have been organized online for the sponsors.
The presentations and programmes are available on the FDIR website at http://fdir.idei.fr.

a) Workshops with the sponsors

- *Workshop on 30 January 2020 with Rodolphe Durand (HEC S&O center) and Stéphane Saussier (IAE Paris)*

Presentations of "Social impact assessment strategy" and "Rémunérer les opérateurs de service public sur leur impact social"

- *Workshop on 3 June 2020 with Christian Gollier (TSE)*

Presentation of "carbon neutrality and climate crisis in the context of Covid 19"

- *Workshop on 4 November 2020 with Olivier Zerbib (Tilburg, ISFA and CREST-Polytechnique-ENSAE)*

Presentation of "Environmental impact investing"

- *Workshop on 27 November 2020 with Stefan Ambec (TSE)*

Presentation of the report to the French prime minister on "Trade Agreement between the EU and the Mercosur: Arrangements and potential impact on sustainable development"

b) TSE Partners webinar on 9 June 2020

Discussions on "the world after Covid 19", with C. Gollier, P. Seabright, and J. Tirole, moderated by C. Casamatta and S. Moinas.

c) Ecole Polytechnique Piketty Stiglitz webinar 'turning points' on 10 September 2020

A transatlantic dialogue between Jo Stiglitz and Thomas Piketty, on COVID-19 pandemic and global economic insecurities, racial disparities and protests, the weakening of democracy, and the U.S. presidential election.

d) Webinar on Impact finance: a fad or an underlying trend in sustainable finance? 25 March 2021

The research initiative FDIR participated in the conference organized by the Secretary of State for the Social, Solidarity and Responsible Economy and Finance for tomorrow on Impact finance.

2) Communication to academic researchers

The researchers of FDIR have been invited to share their work and ideas in various academic conferences and workshops. In their publications or during their presentations, the researchers always gratefully acknowledge the support of FDIR.

Examples of academic conferences

- Casamatta, C, in charge of selecting and animating the “Socially Responsible Finance” session at the 17th Corporate Finance Day, HEC Liège, 9 September 2020
- Crifo, P., “Green and sustainable finance: is perfect the enemy of better? Reflections on the French experience”, Keynote lecture, CEF Symposium on climate finance, 3 December 2020
- Gollier, C., National Bank of Belgium, *Conference “Climate change: Economic impact and challenges for central banks and the financial system”*, Keynote lecture, Brussels, 22 October 2020
- Gollier, C., The welfare cost of forgetting the beta, *annual conference of the EAERE*, zoom, June 2020
- Pouget, S., The Valuation of Corporate Social Responsibility: A Willingness-to-Pay Experiment », *Society for Experimental Finance 2020 Winter Conference*, 5 February 2020, Salt Lake City
- Sepe, S., Knowledge and Its Frenemies, *UC Hastings Law Colloquium*, 27 February 2021 (online event) and *George Mason University Program in Economics & Privacy Roundtable*, 5 February 2021 (online event)
- Sepe, S., Economic Challenges for the Law of Contract, *Conference on New Challenges for Law and Economics*, Center for Contract and Economics, Columbia Law School, 21-22 September 2020, New-York

Examples of workshops and seminars

- Casamatta, C, Equilibrium bitcoin pricing, Scientific Council of the AMF, 12 October 2020
- Gollier, C., Cost-benefit analysis of age-specific deconfinement strategies, paper presentation at the Swedish School of Economics, zoom, May 2020
- Gollier, C., IGIER policy seminar: roundtable "Climate Change and Economic Policy", Milan, 13 November 2020

- Gollier, C., CEPR Research and Policy Network on Climate Change: Chairman of the first webinar of the network, 17 December 2020
- Pouget, S., Do institutional investors vote to curb climate change? An empirical analysis of shareholder meetings, Kedge Business School, 12 March 2020
- Sepe, S., Blood in the Water: The Value of Anti-takeover Provisions During Market Shocks, Seminar Series, The University of Oklahoma's Michael F. Price College of Business, 7 August 2020
- Sepe, S. Corporations and Moral Sentiments*,* CESL-PPE, Arizona University, 30 October 2020

3) General audience reports and communications

Press articles:

- Barrière à la sortie des énergies fossiles (Stéfan Ambec and Claude Crampes), La Tribune, 3 November 2020
- MAC : un écran de fumée pour cacher le bilan carbone des traités commerciaux ? (Stéfan Ambec and Claude Crampes) La Tribune, 21 October 2020
- Le pari de l'hydrogène (Stéfan Ambec and Claude Crampes) La Tribune, 10 September 2020
- Efficacité énergétique des bâtiments : de la théorie à la pratique (Stéfan Ambec and Claude Crampes), La Tribune, July 2020
- Eviter la taxe carbone à tout prix (Stéfan Ambec and Claude Crampes), La Tribune, 30 March 2020
- Les coûts de la sortie du nucléaire en Allemagne (Stéfan Ambec and Claude Crampes), La Tribune, 18 February 2020
- "Faire payer les Chinois pollueurs : est-ce réaliste ?" Christian Gollier, Capital, 21 January 2020
- La présélection de la 33e édition du Grand Prix Turgot on Christian Gollier's book "Le climat après la fin du mois" Journal Spécial des Sociétés, 5 February 2020
- "Les politiciens cachent à l'opinion publique les vrais coûts de la transition écologique" Christian Gollier, La Libre Belgique, 23 February 2020
- " Si l'existence m'était comptée..." Christian Gollier & James K. Hammit, Le Monde, 5 April 2020
- "Gouverner en terre inconnue" Christian Gollier, La Croix, 26 May 2020
- "La crise renforce la nécessité de relancer le marché du CO2", Christian Gollier L'Agéfi, 20 June 2020
- "Les industriels français en faveur d'une taxe carbone aux frontières", Christian Gollier, Le Monde, 17 June 2020
- "Le monde d'après sera attentatoire au pouvoir d'achat", Christian Gollier, Les Échos, 19 June 2020

- "Soyons honnêtes, la transition énergétique nous coûtera à tous de l'argent", Christian Gollier, L'Echo, 13 September 2020
- "De strijd voor het klimaat zal iedereen geld kosten" ('The fight for the climate will cost everyone money'), Christian Gollier, De Tijd, 19 September 2020

Presentations and interviews:

- Crifo, P., 2020, Le label ISR, parole d'experte, podcast urbanchronicle media en ligne, December 2020
- Crifo, P., "Faut-il réapprendre à aimer les actionnaires ?" Entendez-vous l'éco, France Culture September 2020
- Crifo, P., Remettre la finance au service de la société Rencontres économiques Aix-En Seine July 2020
- Crifo, P., "Entreprises: vers un meilleur partage des profits ? " Interview for France Culture journal 24 June 2020: and online publication by Catherine Petillon
- Crifo, P., Hearings by deputy Alexandre Holroyd, head of green finance commission, February 2020
- Gollier, C., FAURECIA: CO2 Neutrality Project Kick-off meeting, Presentation of "For a Carbon Internal Price", Paris, 10 February 2020
- Gollier, C., French Insurance Association: hearings by the commission in charge of a report on the insurability of operating losses risk in case of a pandemic, zoom, 21 April 2020
- Gollier, C., France CULTURE, « Entendez-vous l'éco », on climate and covid crises, 27 April 2020
- Gollier, C., National Academy of Medicine: hearings on pandemic management combining sanitary and economic objectives, 13 May 2020
- Gollier, C., Genshagen Forum (Berlin): Roundtable with deputies Yannick Jadot and Franziska Brantner on the EU Green Deal, zoom, 24 June 2020
- Gollier, C., Task force on carbon pricing in Europe: Workshop on "Fighting global warming in the EU through carbon pricing targeting coupled with border adjustment mechanism", zoom 2 July 2020
- Gollier, C., EU Green Deal - Mini Conference, Roundtable on the EU Green Deal, zoom 3 July 2020
- Gollier, C., TRANS-MUTATION: top executives summer school (Belgium), Presentation of "The climate after the end of the month", zoom 27 August 2020
- Gollier, C., High Council for Climate: hearings of the Blanchard-Tirole Commission: what climate policy for France after the Citizens Convention for Climate, zoom 9 September 2020
- Gollier, C., 15th edition of the Festival of Economics in Trento (Italie): Presentation of "The climate after the end of the month", zoom 25 September 2020
- Gollier, C., EVOLEN Conference, roundtable "Energy in a mutating world", zoom 13 October 2020

- Gollier, C., T20, Task Force 10 on Sustainability: Keynote lecture on “Discounting and our responsibilities towards future generations”, Saudi Arabia zoom, 22 October 2020
- Gollier, C., Conference “Les Affranchis - Students for Liberty”: roundtable "Can the market invisible hand be at the service of climate?", zoom 24 October 2020
- Gollier, C., Olivaint Conference: Webinar "Economics in front of the climate challenge", zoom 4 November 2020
- Gollier, C., CERCLE DU LAC, Presentation of “The climate after the end of the month”, zoom 27 November 2020
- Pouget, S., Roundtable at the French National Assembly with deputy Alexandre Holroyd in preparation of the report « *Choisir une finance verte au service de l'Accord de Paris* », 3 February 2020
- Pouget, S., Responsible Investment, MGEN Finances and Risque Committee, zoom 27 November 2020
- Pouget, S., How to make progress in ESG?, Journées Nationales des Investisseurs, AGEFI/AF2I, 10 December 2020

4) <u>Awards and memberships in 2020</u>

- Casamatta, C.: appointed member of the Scientific Council of the Autorité des Marchés Financiers
- Crifo, P.: appointed member of the Prudential Supervision and Resolution Authority (ACPR)’s supervisory college
- Crifo, P.: appointed Vice chair of the Prudential Supervision and Resolution Authority (ACPR)’s Climate and Sustainable Finance Commission
- Crifo, P.: appointed Fellow ILB and Member of the executive board of Institut Louis Bachelier
- Crifo, P.: member of the commission “Investing for a sustainable transformation”, French center for impact investment and Ministry of Economy and Finance
- Crifo, P.: member of the Jury du Prix du meilleur Article Financier by Banque de France, Assoc des journalistes ecofin & Lire l’Économie.
- Crifo, P.: member of the Jury of the Principle for Responsible Investment Awards
- Crifo, P.: member of the steering committee of E4C Student Challenge “imagine a carbon neutral city”
- Gollier, C.: member of the Blanchard-Tirole commission in charge of the Climate Policy chapter
- Gollier, C.: chairman of the Institut Montaigne Commission in charge of a report on the European climate policy
- Gollier, C.: member of the French-German Economic Council in charge of a policy note on carbon pricing in Europe and the implementation of a crossborder carbon tax adjustment
- Gollier, C.: president of the European Environment Economists Association
- Pouget, S.: PRI Academic Network committee member

- Pouget, S.: member of the Finance ClimAct project (sponsored by the EU programme Life): in charge of developing a questionnaire of MIFID compliance integrating non financial preferences in France

5) Highlights

- Catherine Casamatta chaired the jury of the 15th edition of the European FIR-PRI Awards *Finance and Sustainability*
- Catherine Casamatta and Patricia Crifo were coeditors (with Jean Boissinot, Banque de France) of the Revue d'Economie Financière Special Issue on Climate Finance 2020.

Education and training related to FDIR

FDIR is fostering the diffusion of knowledge on CSR and SRI within the young generations of finance practitioners and researchers. State-of-the-art techniques and ideas of CSR and SRI have been taught in various courses offered to Master's in Economics and Finance at the Ecole Polytechnique, at Toulouse School of Economics (TSE), and at Toulouse School of Management (TSM) of the University of Toulouse. Moreover, seven PhD students are currently working on issues related to FDIR (and one defended in 2020).

1) <u>Courses</u>

- Master Economics for smart cities and climate policy, Ecole Polytechnique: Lecture serie in economics and finance, and capstone projects on climate and sustainable finance action plans at the city or regional level (40h)
- Master Economie de l'environnement, de l'energie et des Transports, AgroParistech & Ecole Polytechnique, Ethique, profits et impact social et environnemental des entreprises (20h)
- Bachelor in Mathematics and Economics: Corporate Social and Environmental Responsibility (8h)
- XScience Camp: CSR (3h)
- Master in Finance, TSE and TSM: Asset Management and trading (24h)
- Master in Finance, TSE and TSM: Psychology of finance (24h)
- Master in Finance, TSE and TSM: Green structured products and climate risk (12h)
- Master in Economics, TSE: Economics of risk and insurance: taking into account the long-term impacts of investments (27h)
- Master in Economics, TSE: benefit-cost analysis (30 h)
- Master in Economics, TSE: Advanced Environmental Economics (30 hours)
- Master in Economics, Ecole Polytechnique: Macro-finance (24h)
- Master in Economics, TSE: Topics in Law and Economics (including corporate governance) (30h)
- PhD TSE: Climate and Energy (15 hours)

2) <u>PhD Students</u>

PhD students of FDIR in 2020 included:

- Li Bao: "Essays on passive and green asset management", Toulouse School of Management, started in 2018 (advisor: S. Moinas)
- Aurélien Bigo: "Transport and energy transition scenarios", Ecole Polytechnique, co-supervision with, Contract CIFRE SNCF-Ecole Polytechnique, started in 2017 (advisors: P. Crifo and G. Meunier)

- Vincent Bouchet: Integration of climate issues into financial risk management, started in 2018 (advisors: P. Crifo and N. Mottis)
- Hung-Thuy Nguyen, SRI in developing countries, Toulouse School of Economics, started in 2017 (advisor: Ingela Alger)
- Angel Prieto: Management of Decarbonation, Ecole Polytechnique, started in 2019 (advisors: P. Crifo and N. Mottis)
- Ruichen Wang: Corporate Social Responsibility: valuation, tools and governance, Toulouse School of Management, started in 2020 (advisor: S. Pouget)
- Yixin Wang: Ownership structure in China, started in 2018 (advisor: S. Rossetto)
- Yuting Yang, Economic Studies on Energy Transition and Environmental Regulations, (advisors: Stefan Ambec and Nicolas Treich) defended on 29 June 2020

3) Master theses

- Shin Heuk Kang (M1 Economics, TSE), ESG Premium and Risk Factors, supervised by Marianne Andries, 2020
- Keller Martinez Solis (MSc Finance, TSM), Green assets, supervised by Sophie Moinas, 2021
- Hanh Nguyen Luu (MSc Finance, TSM), Blue bonds, supervised by Sophie Moinas and Stéphane Villeneuve, 2021