Sustainable Finance Center

Toulouse School of Economics

NEWSLETTER – December 2021

Research highlights

Do firms that do good, do well?

How can investors maximize their social impact?

How can firms help governments to fight climate change?

Economics for the Common Good

News p.4

Research highlights p.6

Do firms that do good, do well?
How can investors maximize their social impact?
How can firms help governments to fight climate change?

Outreach p.17

Recent events
Seminars

Media p.21

Publications p.24

Academic papers
Working papers

Director's message

Sustainability is changing the world, whether we like it or not

Despite the dashed hopes of many activists at COP26, sustainability concerns have already caused a seismic shift in our economic and financial behavior. The proportion of funds directed towards socially responsible investment has been shooting upwards, from 11% in 2011 to more than 35% in 2020. If in the past Europe was considered the main market for ESG funds, North America and the rest of the world are now catching up. This November, Bloomberg News reported that the cost of capital for fossil fuel projects has risen to about 20%; for renewable energies, it has dropped as low as 3%.

The rapid rise of sustainability issues seems likely to continue in the wake of the Covid-19 pandemic, particularly given the strength of such concerns among Millennials. In this issue, TSE researchers review a wealth of existing research to suggest how firms and shareholders might respond. What will the impact be on firms' economic and financial performance? Why should firms care about promoting the common good? How can companies complement government efforts to tackle climate change? Answering such questions is fraught with technical challenges, but TSE economists are well equipped to weigh the evidence and suggest promising new research opportunities.

The past six months have been especially productive for the Sustainable Finance Center. In the wake of a series of high-profile virtual events including the TSE-Banque de France prizes and the Common Good Summit in May, our researchers have also been busy preparing for the flurry of in-person conferences and seminars that has accompanied the start of the new academic year in Toulouse.

In particular, the second conference to be hosted by the Sustainable Finance Center is being held online and on site at TSE on December 2 and 3. Thought-provoking sessions will include keynote speeches by Jean Tirole (2014 Nobel Laureate in Economics, TSE) and Jean-Charles Rochet (Professor of Finance, University of Geneva and TSE) and a panel discussion on socially responsible finance and shareholder engagement. The event will also host the inaugural conference of the FIT IN Initiative, which aims to boost financial inclusion in emerging economies: presentations will suggest ways in which the power of mobile money and digital payments can be harnessed for the benefit of the poorest.

We look forward with great enthusiasm to welcoming readers to this and future events.

Sophie Moinas
Director, TSE Sustainable Finance Center

News

Emmanuelle Auriol receives Antitrust Compliance Award

Emmanuelle Auriol (TSE-UT1), together with Erling Hjelmeng and Tina Søreide, won the Academic Award of the 2021 Antitrust Compliance Awards for her article *'Deterring corruption and cartels: In search of a coherent approach'*, published in *Concurrences Review* in 2017. The aim of the awards is to contribute and promote compliance in the antitrust field.

Christian Gollier wins two EGRIE awards

Congratulations to our Director who scooped two EGRIE (European Group of Risk & Insurance Economists) awards this year:

SCOR-Geneva Risk and Insurance Review Best Paper Award

Christian Gollier is the 2021 laureate for his paper *'Pandemic economics: Optimal dynamic confinement under uncertainty and learning'*. The SCOR/TSE-P Award for the best paper of the year published in *The Geneva Risk and Insurance Review* is organized by the "Risk Markets and Value Creation" Chair at TSE and University of Paris-Dauphine, sponsored by SCOR and the Fondation du Risque.

The Harris Schlesinger Prize for Research Excellence

Christian also picked up this award for his paper *"On the Underestimation of the Precautionary Effect in Discounting"*. This prize is dedicated to the memory of Harris Schlesinger, a founding editor of *The Geneva Papers on Risk and Insurance Theory* (now *The Geneva Risk and Insurance Review*).

More information on: egrie.org/awards-grants

Foundation for science

Welcome to a new corporate partner: GetLink, the Eurotunnel operator

GETLINK

In March, TSE was delighted to begin a new partnership with Getlink, a key player in international transport and mobility infrastructures in Europe. Getlink, formerly known as Eurotunnel, is the operator of the tunnel that transports Eurostar trains, the majority of passenger vehicles and freight across the English Channel. In this post-Brexit era, Getlink is the most important transport link between the UK and continental Europe, and is committed to facilitating trade, economic activity and exchange between the two, bringing people, business, and cultures together. Besides Eurotunnel, Getlink also operates Europorte, France's leading private rail freight operator, and ElecLink, the future 1GW electrical interconnector between the UK and France, as well as an important private railway training center.

The TSE lead researcher of the partnership is **Ulrich Hege** and the other TSE members involved are **Catherine Casamatta, Sophie Moinas, Sébastien Pouget** and **Silvia Rossetto**. Like many companies, Getlink is redefining its policies to include environmental, social, and governance (ESG) criteria in its corporate strategy and performance evaluation, and is in constant exchange with institutional investors about its ESG policies. Its new partnership with TSE will examine questions about how companies like Getlink should position themselves in the rapidly evolving area of ESG policies, centered around three main research themes:

- Understanding the links between ESG issues and companies' policies and economic/financial performance
- Understanding the motivations of companies and their decision-makers to integrate ESG criteria in their investment decisions
- Defining the roles of governments and other stakeholders in determining ESG policies

TSE hopes that this first year of partnership will be the beginning of a long-term relationship.

Research highlights

The sustainability revolution

Environmental and social concerns are increasingly influencing our decisions about where to invest money, the products and services we buy, or which company we work for. These changes are reshaping the economic landscape for all participants – governments, firms, investors, consumers, and taxpayers – regardless of their own environmental and social views and priorities.

TSE researchers have conducted extensive reviews of the latest theoretical and empirical research on Corporate Social Responsibility (CSR). For this special dossier, Sophie Moinas and Silvia Rossetto discuss the impact of the rise on ESG concerns on firms' economic and financial performance. Catherine Casamatta and Sébastien Pouget explore how socially responsible shareholders can maximize their impact; and how managers should cater to their altruistic preferences. Finally, Ulrich Hege examines the most effective ways for companies to work with policymakers in tackling climate change.

Do firms that do good, do well?

Sophie Moinas and Silvia Rossetto

Global sustainable investment now tops $35 trillion, up by 54% from 2016 to 2020. What are the implications of the rise in sustainability concerns for firm value and economic performance?

Reviewing the latest research in this fast-developing field, TSE's Sophie Moinas and Silvia Rossetto look at the impact of Corporate Social Responsibility (CSR) policies on cash flows, cost of capital and access to capital.

Why is it difficult to assess the impact of sustainable policies?

Progress is being made on potential economic mechanisms linking ESG policies to firms' economic performance, and in the creation and enforcement of global ESG reporting standards. Unfortunately, measurement and causality issues remain extremely challenging. Researchers lack access to a consistent historical time series and there is no accepted way to adjust accounting variables for risk.

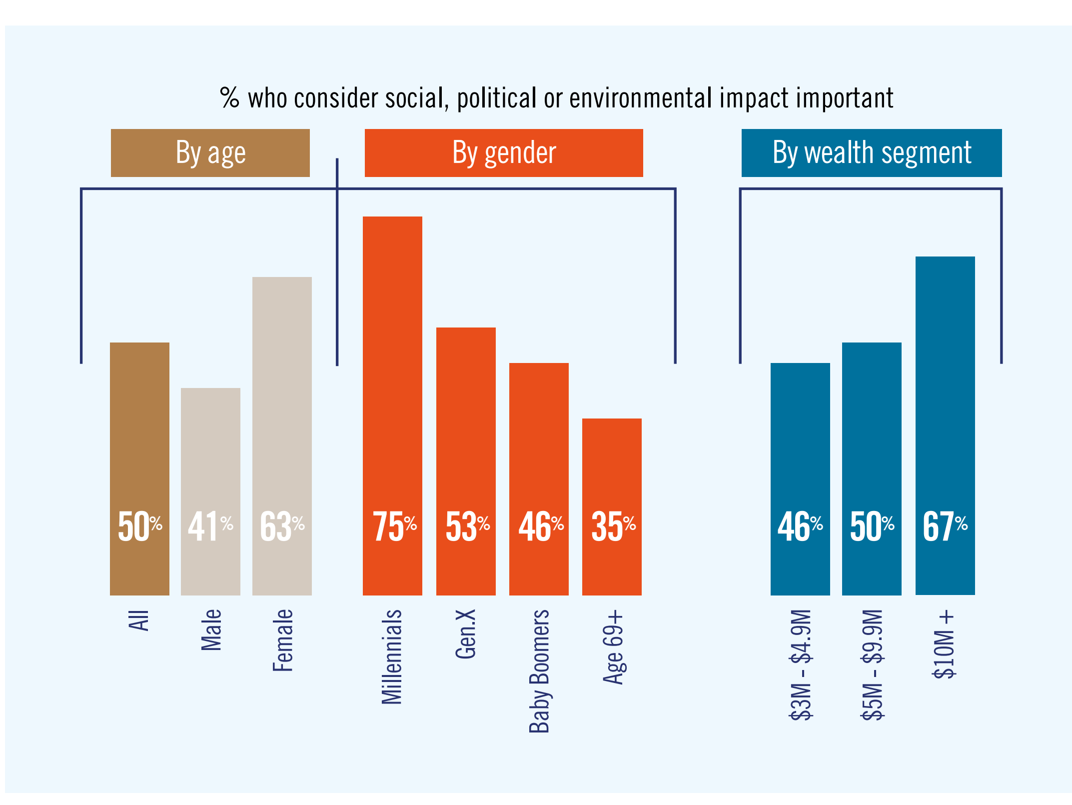
The complex aggregation of diverse intangibles required for ESG ratings is particularly problematic, with no consensus on the exact list or relative importance of ESG issues. As a result, data reported by firms about ESG practices are inconsistent across firms and across countries. Lower coverage for emerging markets and non-public firms also leads to potential biases and reduces the external validity of empirical studies.

> "Firms face increasingly stringent environmental regulation, including taxes and bans on polluting technologies. Reducing emissions decreases firms' exposure to an increase in carbon prices or the risk of stranded assets

Can firms benefit from CSR policies that increase employees' wellbeing?

Human capital-centered theories suggest that a focus on employees' wellbeing may increase productivity, motivation, and help to attract or retain key employees. Edmans (2011) shows that firms on *Fortune*'s list of the "100 Best Companies to Work for in America" outperformed their peers on the stock market from 1984 to 2011. This suggests some CSR policies have the potential to increase firm value.

But firms may implement CSR policies because they anticipate a better operational performance in the future. To circumvent this issue, Flammer (2015) focuses on an "almost random" sample of CSR proposals that pass or fail by a small margin of votes. The adoption of these proposals leads to positive announcement returns, and better accounting performance and productivity. Subsequently, Flammer and Kacperczyk (2016) find evidence that stakeholder-oriented firms are more innovative.



Social responsibility preference of high net-worth investors.

Source: U.S. Trust (2014)

Could CSR policies be opportunistic?

CSR can improve the firm's brand image or reputation, and foster stakeholders' goodwill. Some ESG policies could therefore be "NPV positive" investments, enabling firms to exploit stakeholders' willingness to pay more for a sustainable product or earn less at a sustainable firm. In Sweden's more sustainable sectors, Krueger et al. (2021) report that wages are about 10% lower; sustainable firms are also better at recruiting and retaining high-skilled workers. Servaes and Tamayo (2013) show that CSR and firm value are positively related for firms with high "customer awareness".

CSR policies can also enable firms to build "social capital", increasing resilience in bad times. Several empirical studies suggest that high-CSR firms performed better during the 2008-2009 financial crisis and the Covid-19 pandemic. Employees, customers, suppliers, and other stakeholders may be more likely to help firms facing a negative shock, reciprocating for firms' past investment in social capital.

Does CSR reduce firms' risk exposure?

Firms face increasingly stringent environmental regulation, including taxes and bans on polluting technologies. Reducing carbon emissions thus decreases firms' exposure to an increase in carbon prices or the risk of stranded assets. They also face salient, pure risks from climate change that are accounted for by creditors. For instance, Correa et al. (2020) show banks increase their loan rates to unaffected, but at-risk, borrowers after a climate change-related disaster.

Empirical evidence suggests investors already demand compensation for exposure to carbon emission risk. Sautner et al. (2021) find that exposure to regulatory shocks negatively correlates with firm valuations. Regulatory risk also impacts credit scores and cost of debt. Seltzer et al. (2020) document that firms with poor environmental profiles tend to have lower credit ratings and higher yield spreads, particularly when facing stringent environmental regulations. Ilhan et al. (2021) show that protection against downside risks is costlier for carbon-intensive firms.

A firm's investment to reduce its emissions is unlikely to impact the probability of extreme events. However, ESG policies may serve as an insurance mechanism against harmful events or mitigate damages due to regulatory, legislative or consumer actions. Hoepner et al. (2021) provide empirical evidence that investing in ESG may reduce firms' downside risk.

This exposure to downside risk is accounted for. Cohen and Wardlaw (2021) find that firm value decreases with injury rates, which show strong negative relations with cash flow, cash balances and dividend payout. Following negative ESG news, Derrien et al. (2021) find that analysts significantly downgrade their earnings forecasts.

How might sustainability concerns impact firms' cost of capital?

Theoretical models suggest that ESG preferences can lower the cost of capital. ESG investors are willing to pay more for greener firms, so they lower the expected returns of these stocks. As demand pushes green asset prices up, the market value of green firms increases along with the relative weight of green stocks in the market portfolio. Hence at equilibrium, investors with no ESG preferences will also hold a greener portfolio. Even a small fraction of ESG investors is enough to produce a social impact. Many empirical studies support these predictions. Chava (2014), for example, finds stocks in high polluting sectors have higher expected returns.

It is difficult to clarify how ESG policies impact a firm's systematic risk. In theory, reduction in a firm's downside risk following implementation of ESG policies should not necessarily impact its cost of capital. Investors should only be concerned by the firm's contribution to systematic risk. Consequently, the value of the firm should not change if it undertakes an investment that impacts total risk, as long as the return on the investment is uncorrelated with the return of the market portfolio. For instance, firms with high job satisfaction are often human capital-intensive, making them vulnerable to market downturns. A policy improving job satisfaction could therefore simultaneously decrease the firm's total risk and increase its systematic risk. However, empirical research indicates that sensitivity to downside risk decreases when ESG engagements are successful, and that a bank's social aggregate score improves a firm's resilience.

> "ESG ratings can impact banks' willingness to lend for various reasons. For example, poor ESG performance could signal myopic managerial decisions, poor customer fidelity, employee runaway or litigation risks

What about the impact on firms' access to capital?

ESG ratings can impact banks' willingness to lend for various reasons. For example, poor ESG performance could signal myopic managerial decisions, poor customer fidelity, employee runaway or litigation risks. In addition, banks are increasingly concerned about regulatory risk on climate-related financial exposures. Homanen (2018) shows that reputation concerns also play a role, with deposit growth declining for banks which financed the environmentally controversial Dakota Access Pipeline. Empirical studies confirm that firms with high ESG scores have better access to capital.

Banks' ESG policies also affect firms' operational activities: Firms with higher emissions experience a cut in investments and asset size. Houston and Shan (2021) shows that banks tend to match with borrowers with similar ESG profiles. When a borrower has a worse ESG score than the lender, its ESG score subsequently improves, suggesting that more ESG-prone banks might influence the firm's policies.

Beyond the question of access to capital, empirical studies show that firms benefit from lower interest rates when they issue green bonds, the proceeds of which are invested in environmental projects. This is confirmed by empirical studies which highlight the importance of transparency and clear standards in attracting bondholders with ESG preferences. Green bonds can also be perceived as a signal by shareholders. Research shows that issuance of a green bond is followed by a positive stock price reaction, and even an increase in ownership by long-term and green investors.

How can investors maximize their social impact?

Catherine Casamatta and Sébastien Pouget

When stakeholders such as employees or consumers care about the social impact of their economic activities, Corporate Social Responsibility (CSR) can be used strategically to increase profit. For instance, firms can sell more responsible products at higher prices, pay employees less to work on more responsible missions, or act preventively to save the cost of future regulations. But shareholders themselves may have prosocial preferences and seek to favor the common good, even at the expense of profitability.

TSE's Catherine Casamatta and Sébastien Pouget discuss how prosocial investors can have a large social impact, and how managers can best respond to shareholders' altruistic preferences.

Should prosocial shareholders instruct firms to do good on their behalf?

Shareholders who care about the common good can take charitable actions on an individual basis, by donating time or money to good causes, or may instruct firms in which they invest to adopt responsible, even if less profitable, policies. As Morgan and Tumlinson (2019) show, it may be more efficient to let the firm, rather than its individual shareholders, make the donations. The first reason is that donating is plagued by a free-riding issue at the individual level. When firms donate, the management considers how the donation impacts the welfare of all of its shareholders. The firm thus donates more than individuals would, and shareholders are better off. The second reason is related to production decisions. At the profit-maximizing level, the last unit of production generates a social cost but no profit (See Figure 1). This is clearly inefficient. Instead, a firm with prosocial shareholders will choose to produce less than the profit-maximizing level, making shareholders poorer but happier.

> "Instead of focusing on companies with the best combination of financial and social performance, prosocial investors should target responsible firms which cannot be financed by conventional investors

Which firms should prosocial investors invest in?

If prosocial shareholders direct their investments towards more responsible companies, this affects the share price of these firms, and thus their cost of capital. In turn, it becomes less costly for firms to finance responsible projects, making such projects more profitable and speeding up their adoption. This is consistent with empirical evidence that sin stocks, or firms with large environmental risks, trade at a discount.

Green and Roth (2021) show, however, that prosocial investors can reduce social welfare when targeting firms which are both highly profitable and highly responsible. The reason is that, by reducing the cost of capital of those firms, prosocial investors crowd out conventional investors, who would have been willing to invest in profitable and responsible firms. So, instead of focusing on companies with the best combination of financial and social performance, prosocial investors should target responsible firms which cannot be financed by conventional investors because of their poor financial performance.

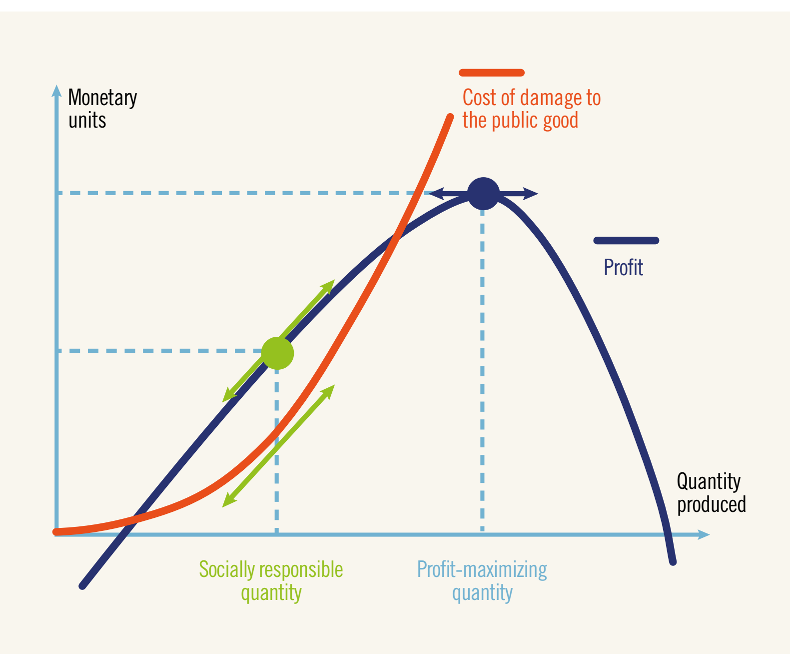


Illustration of Morgan and Tumlinson (2019)'s analysis.

The horizontal axis is the quantity produced by the firm. The vertical axis represents profits or costs in monetary units. The red curve is the social cost of a given externality, such as the pollution caused by the firm's production.

Landier and Lovo (2020) highlight that, when prosocial investors do not accept a reduced financial return, it is still possible to increase firms' social performance by tying funding to explicit social performance objectives (say, pollution restrictions). Landier and Lovo (2020) find that an prosocial fund's optimal strategy is to concentrate all its capital in a given sector, increasing the likelihood that its social performance objectives will be accepted by firms in that sector. To be successful, the prosocial fund should target sectors with more externalities, and in which firms face more financing frictions. As a result, imposing pollution restrictions on downstream firms can generate more impact than investing in the sector with the largest direct emissions.

Oemke and Opp (2021) show the complementarity between conventional and prosocial investors. Firms can indeed raise more funding by attracting both prosocial and conventional investors. This joint financing can be implemented, for instance, if the firm issues regular as well green bonds. The authors also provide further support for the idea that prosocial investors who target "irresponsible" firms can have more impact.

What happens when shareholders disagree about CSR?

Today's financial markets reveal various degrees of commitment towards responsible investing. Gollier and Pouget (2021) analyze how general assembly meetings enable shareholders to indicate to managers what policy they collectively prefer. In this case, the firm may adopt the responsible strategy, despite responsible investors being less numerous than conventional investors in the market. Moreover, the firm's level of responsibility is fragile. When responsible investors constitute a sufficiently large minority, the responsible strategy may be adopted but firms could be vulnerable to a takeover by an activist shareholder who wants to change the strategy.

What is the empirical evidence on shareholders' engagement on CSR?

Brière, Pouget and Urèche-Rangau (2020) study the voting policies of two emblematic investors, finding that Norway's sovereign wealth fund favors responsible resolutions far more often than BlackRock. These results are in line with other empirical contributions which show that the largest fund families, despite their position as universal owners, display low levels of support for ESG resolutions.

This lack of a clear engagement may hide influence behind the scenes. Azar et al (2021) show that the world's three largest asset managers – BlackRock, Vanguard, and State Street Global Advisors – concentrate their dialogue with management on the largest, most visible public firms with a significant impact on climate change. They also find that an increase in shareholdings by the Big Three is associated with a reduction in GHG emissions.

> **"Firms can raise more funding by attracting both prosocial and conventional investors. This joint financing can be implemented, for instance, if the firm issues regular as well green bonds**

Hedge funds have also launched shareholder activism campaigns. DesJardine, Marti and Durand (2020) show that hedge funds tend to target firms with high CSR scores. DesJardine and Durand (2020) further show that CSR level decreases by around 20% after a firm has been targeted by a hedge fund activism campaign, linked to an increase in operating profitability and stock market valuation. These findings suggest a negative impact of hedge fund activism on firms' CSR. Recent evidence suggests, however, that some responsible hedge funds are starting to improve the environmental performance of investee firms.

What corporate governance tools should be used to foster CSR?

Many aspects of corporate governance can encourage the adoption of responsible strategies: for example, incorporating a social objective in the firm's mission as in Public Benefit Corporations, improving the functioning and diversity of the board, and external audits and certifications. Managerial compensation is another important mechanism. While the trend since the late 1980s has been to tie managerial compensation more closely to financial performance, one can question whether this type of compensation fosters the adoption of responsible strategies.

Implementing a more responsible strategy often implies asking managers to achieve different (social and economic) objectives. An important insight of this multitask situation, first analyzed by Holmstrom and Milgrom (1991), is that if agents receive (multi)performance-based compensation, they tend to allocate too much effort to those tasks which are easier to observe or assess. Therefore, when some dimensions of performance are hard to observe, it is more efficient to limit incentive pay in favor of fixed wages. Finally, managerial bonuses based on social performance can be used when social performance can be precisely measured.

Key takeaways

1. Corporate concern for the common good is not in contradiction with shareholder welfare maximization. Many investors have a prosocial inclination and would benefit from an increase in CSR even if this means less profitability.
2. By engaging in prosocial activities, managers can help altruistic shareholders avoid the free-rider problem that would affect them as individuals. Managers can also cater to prosocial investors by adjusting their firms' operations to reduce emissions and other negative externalities.
3. Managers should analyze the prosocial inclinations of their shareholder base and votes at shareholder meetings. This can help them adapt capital budgeting and business decisions according to shareholders' societal preferences.
4. Managers should consider the social value of the capital they raise. If managers have achieved a high level of social performance, it can be a responsible strategy to focus on financial performance to attract conventional investors. This will reduce funding from prosocial investors but increase social performance at the industry level, reallocating social capital towards less profitable, but responsible firms.
5. Managers seeking to implement more responsible strategies benefit from raising funds from both conventional and prosocial investors. The presence of conventional investors, who could otherwise pursue conventional projects, induces prosocial investors to provide more funding, and at cheaper terms, for responsible projects.
6. Prosocial shareholders should favor fixed wages over financial performance-based bonuses if they want to promote CSR. Social performance-based bonuses should only be used when social performance metrics are clear and when managers' choices can improve them.

How can firms help governments to fight climate change?

Ulrich Hege

Ultimately, only strong government leadership and market-based carbon pricing can be an effective response to the climate challenge. But the proliferation of corporate social responsibility (CSR) initiatives suggests many companies and investors are determined to take an active role.

Focusing on carbon regulation and corporate disclosure, TSE's Ulrich Hege discusses how to ensure an efficient division of tasks between the public and private sectors.

What tools can governments use to guide an efficient energy transition?

The transition to carbon neutrality needs to be managed over an extended period and at a gigantic cost. In environmental matters, government action has proven to be effective when complete bans are required and affordable technological substitutes exist, for example in the case of CFC emissions or acid rain. But the energy transition is in a different category. Given the huge investments needed, it is important to prioritize the least costly options and to adopt a market-based approach, such as an emissions trading system (ETS).

The first guiding principle of a market-based approach is that the marginal abatement cost is the same for all decarbonization efforts. In principle this can be achieved with carbon taxes or quantity caps. In practice, large-scale emissions trading, a powerful tool to shift decarbonization investments to the least costly alternatives, is much harder under a tax system than a cap-and-trade system, a reason to favor anchoring carbon pricing around an ETS. Also, as every ton of greenhouse gas (GHG) has the same impact on the planet, efficient regulations should strive to implement an effective worldwide uniform carbon price.

A second guiding principle is the efficient intertemporal allocation of carbon reduction efforts. What matters is the cumulative stock of GHG in the atmosphere, hence decarbonization investments today can be efficiently traded off against investments tomorrow. The reference point for economists and regulators is an optimal carbon price, the social cost of carbon, that follows a steadily increasing trajectory, incorporating the efficient discounting that accounts for the major sources of long-term uncertainty, regarding macro-economic growth, technological development, and climate risk.

> "Governments can ensure the market-based price will converge to the social cost of carbon, but they need the will and legitimacy to act. They are unlikely to adopt efficient policies without pressure from civil society and support from corporate policies

What are the challenges of implementing efficient carbon policies?

Governments hesitate to implement carbon prices, since they fear the repercussions when energy prices increase (energy is often effectively subsidized). Even though solutions exist for redistribution of carbon tax revenue that would make carbon pricing income-neutral for the overwhelming majority, political realities favor the use of hidden or indirect carbon taxes. Unfortunately, this results in confusing price signals – for example, the implicit carbon price in the EU vehicle standard is at least 600€/t CO2 over the lifetime of new vehicles, whereas carbon offsets can be purchased for 2€/t CO2e. The consequence is inefficient capital allocation.

As the history of the EU ETS shows, carbon markets can be subject to large price volatility and unpredictable price developments. This can happen when demand is erratic, permits are allocated too generously, or when substitution processes and technological progress arrive faster than anticipated.

For this reason, economists lean towards a cap-and-trade system with a price band, or "safety valve", allowing for flexibility in reallocating abatement efforts according to contingencies. They also recommend using a price floor. A market-based system can anchor convergence to a uniform carbon price, which in Europe should logically be the EU ETS. But this will require reinforced stabilization mechanisms so that the carbon price path is predictable enough to encourage decentralized long-term investments.

> "Evaluating ESG policies is plagued with very difficult issues about how to find adequate measures. For example, the plethora of existing ESG ratings show little correlation, highlighting the problems

Nothing guarantees that the market-based price on an ETS will converge to the social cost of carbon. Governments have the means to ensure such convergence (by regulating the emission permits), but they also need the will and legitimacy to act. They are unlikely to adopt efficient policies without pressure from civil society and support from corporate policies.

What are the lessons for the Article 6 mechanism from the failure of the Kyoto Protocol?

An object lesson in the pitfalls of global carbon trading, emission limits under the Kyoto Protocol were inadequate and they lacked a mechanism to dynamically tighten commitments and limits. The price for offsets was initially low. It then collapsed after the Global Financial Crisis and never recovered, explaining why the EU ETS limits were fully used.

In spite of best intentions, Kyoto's governance mechanism proved to be largely captive to issuer interests and showed lax standards. A major problem was that developing countries had no emissions target: China, India, and Brazil got credits while hugely increasing emissions.

The successor mechanism, Article 6 under the Paris Agreement, was just agreed in principle at COP26 in Glasgow, after six years of wrangling. The disenchanting outcome of the Kyoto mechanism largely explains why Article 6 turned out to be one of the thorniest parts of the Paris Agreement. Diplomatic efforts and interested parties (like NGOs and corporate stakeholders) must be vigilant about the implementation details of Art. 6, and make sure that traded permits correspond to truly additional investments in reducing carbon emissions.

Should firms be forced to disclose information about ESG practices?

Disclosure is a vital tool to measure the impact of ESG initiatives. Managers may feel little motivation to disclose. Manager incentives are determined by contractual compensation and career concerns. Then there are the costs of disclosure and concerns about competitors. Voluntary disclosure, therefore, will be insufficient unless shareholders press for disclosure, and signal that they care about ESG externalities.

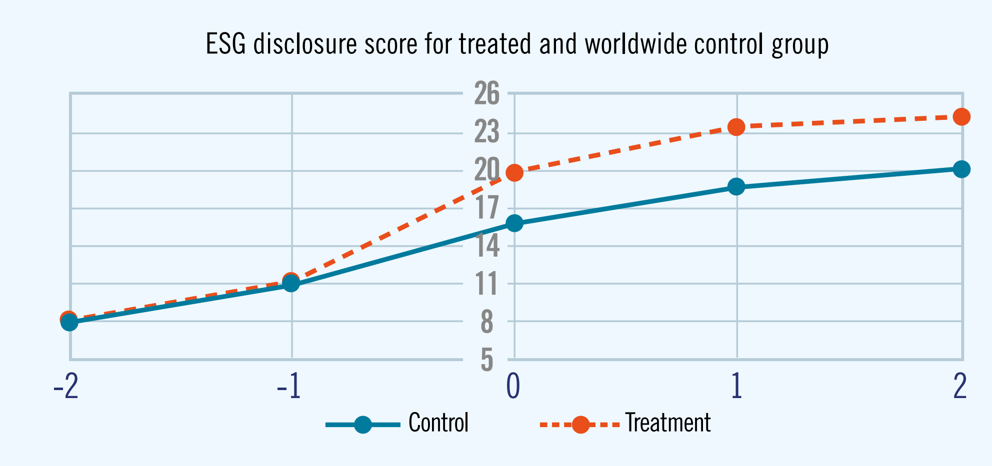
Such pressure does have effects. In a survey of large portfolio managers, Ilhan, Krueger, Sautner, Starks (2020) find extensive support for carbon disclosure, correlated with beliefs that carbon risks are mispriced. Asset managers believe that disclosure could be improved if investors actively engage with firms. Ilhan et al. (2021) find strong empirical evidence that larger institutional ownership is linked to more voluntary carbon disclosure.

Several empirical studies find that mandatory disclosure leads to measurable improvements in ESG scores, which may also improve valuation. Christensen, Hail, and Leuz (2021) argue that the benefits of mandatory disclosure mostly accrue from standardization.

It is also necessary to have more convergence in ESG measurement. Evaluating ESG policies is plagued with very difficult issues about how to find adequate measures. For example, the plethora of existing ESG ratings show little correlation, highlighting the problems. For investors, the task of comparing scores is arduous and uncertain. In the absence of strong incentives for private parties to coordinate disclosure standards, efforts for more readable and comparable ESG reporting must be government-sponsored.

What impact does environmental regulation have on innovation?

Corporate innovation will be a major element of the answer to the climate challenge. In the US, Dai, Duan and Ng (2020) document that competitive firms undertake more green innovation in response to an increase in environmental regulatory standards. Firms in the top competition decile increase their green innovation by 8%. The researchers explore the possible sources of gain in competitive strengths arising from green innovation. In particular, they find that competitive firms have more product differentiation and more customers after the introduction of tighter environmental regulations.



Mandatory disclosure improves ESG scores

Their treatment group consists of firms in four countries that introduced mandates: China (2007), Malaysia (2006), Denmark (2008) and South Africa (2009). They compare these firms with a 10,000-strong global sample.

Key takeaways

1. Carbon regulation is likely to remain inefficient without sustained international coordination. Firms can put pressure on the diplomatic process through their own CSR policies and long-term strategies for decarbonization. Companies operating in "hard-to-decarbonize" sectors, such as energy and transportation, will have a key role in developing pathways to carbon neutrality
2. Using markets for carbon offsets, pioneered by the Kyoto protocol, is intellectually attractive, but the reality is sobering. The problem of verifying net benefits will likely never be entirely solved. Corporate policies should therefore always abstain from offset markets that are too cheap to be genuine, and be meticulous and transparent in their use of offsets as opposed to genuine in-house abatement efforts.
3. Government carbon regulation is often erratic, inefficient, and volatile. Corporate CSR policies have a strong support role. For example, the use of internal carbon prices can complement government efforts by signaling corporate adaptation to rising carbon prices and guiding long-term investments.
4. The world's capacity to foster and harness technological innovation will be essential to a successful energy transition. Incentives such as predictable carbon policies and prices will largely come from governments. But the vision, strategy and entrepreneurial skills of private-sector participants will be crucial for green innovation.

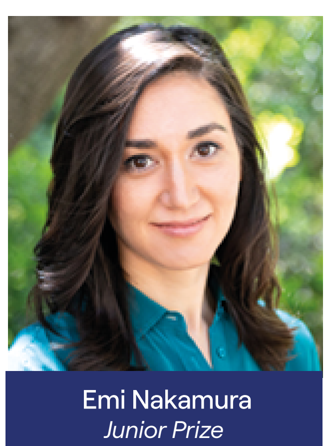
Outreach

Recent events

Banque de France-TSE prizes in monetary economics and finance / *Online, May 17*

François Villeroy de Galhau and **Sylvie Goulard** (Banque de France), together with TSE's Jean Tirole and Christian Gollier, awarded the BDF-TSE prizes at a special digital event. The four laureates delivered technical talks presenting their work to a large audience, then joined an insightful panel discussion on **'Money and liquidity in times of crisis'.**

John Moore
Senior Prize


Emi Nakamura
Junior Prize

Jón Steinsson
Junior Prize

Silvana Tenreyro
Junior Prize

Does a drop in long-term real interest rates lead to secular stagnation? That question is becoming more prevalent around the world. Low interest rates don't seem to be delivering high growth

The Covid shock was so different from any other economics shocks but it is worth remarking on the incredible speed and force of the monetary and fiscal policy response

When you're trying to estimate the slope of the Philips curve using aggregate variation you face this incredibly difficult empirical problem which has to do with time variation in the monetary regime

The UK lending schemes were aimed at preventing tighter borrowing constraints particularly where massive uncertainty had led to increases in perceived credit risk

François Villeroy de Galhau, *Governor of the Banque de France*

Watch John Moore's presentation *here*, Silvana Tenreyro's presentation *here* and find out more on the laureates' research in the May 2021 *newsletter of the Center*.

Common Good Summit / *Online, May 27-28*

The first "Common Good Summit" organized by TSE and *Challenges* business magazine was a unique opportunity to see six Nobel laureates (Abhijit Banerjee, Angus Deaton, Esther Duflo, Bengt Holmström, Amartya Sen and Jean Tirole) exchange with international economic leaders, top executives and academics from the world's major universities on regulating capitalism and helping the notion of the common good to survive the Covid-19 pandemic.

Two stimulating sessions were devoted to finance:

- **"What profitability of capital for the common good?"** with Jean-Laurent Bonnafé, BNP Paribas Director and CEO, Catherine Casamatta, UT1-TSE-TSM Professor of Finance, Saam Golshani, White & Case Partner, and Philipp Hildebrand, Blackrock Vice Chairman.
- **"Debt and the common good"** with Olivier Blanchard, Peterson Institute Senior Fellow, Hélène Rey, London Business School Economist and Professor, and Jean Tirole, 2014 Nobel laureate and TSE Honorary Chairman.

Watch the roundtable videos and find more information on *CommonGoodSummit.com*

You can also read more about the first roundtable on page 21 of our *Summer 2021 TSE Mag*

37th symposium on Money, Banking and Finance / *Online, June 17-18*

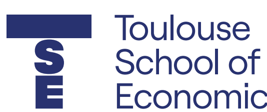
Banque de France, LEO, GDRE, Banque de France's foundation, Dauphine PSL and Panthéon Sorbonne Paris I University organized a joint meeting on Money, Banking and Finance.

TSE Director **Christian Gollier** participated in a panel session entitled **"Epidemiology and the economy: forecasting issues"** with **Josselin Garnier** (Polytechnique) and **Xavier Timbeau** (Observatoire Français des Conjonctures Economiques).

Business Talk with Sylvie Goulard, Deputy Governor of the Banque de France / *Toulouse and online, September 16*

How can central banks contribute to green finance?

Sylvie Goulard explained to TSE students how Banque de France has taken decisive actions to mainstream its focus on climate change throughout the whole range of its activities. Eventually, it aims to help the financial industry better integrate climate-related risks and foster the development of green finance.



Seminars

- Adrien D'Avernas *(Stockholm School of Economics)*, Bonds vs. Equities: Information for Investment, November 9
- Luca Fornaro *(CREI – Centre de Recerca en Economica)*, Monetary Policy in the Age of Automation, October 26
- Marco Pagano *(University of Naples Federico II)*, Loan Guarantees, Bank Lending and Credit Risk Reallocation: Empirical banking, October 22
- Filip Mrowiec *(Toulouse School of Economics)*, The Role of Opacity in Non-exclusive, Secured Lending, October 15
- Sebnem Kalemli-Ozcan, Risk-taking and Monetary Policy Transmission: Evidence from Loans to SMES and Large Firms, October 12
- Yifei Zhang *(Toulouse School of Economics)*, Corporate Venture Capital and Firm Scope, October 8
- Ilse Lindenlaub *(Yale University)*, Marriage Markets and Labor Market Sorting, October 5
- Elena Asparouhova *(University of Utah)*, Price Formation in Multiple Simultaneous Continuous Double Auctions, with Implications for Asset Pricing, October 1
- Stéphanie Schmitt-Grohé *(Columbia University)*, Optimal Bank Reserve Remuneration and Optimal Capital Control Policy, September 28
- Saki Bigio *(UCLA)*, Scrambling for Dollars: International Liquidity, Banks and Exchange Rates, September 21
- Daniel Metzger *(Rotterdam School of Management)*, The Sustainability Wage Gap, September 17
- Juan Rubio-Ramirez *(Emory University)*, Dividend Momentum and Stock Return Predictability: a Bayesian Approach, September 14
- Mina Lee *(University of Washington - Saint Louis)*, Passive Investing and Price Efficiency, June 14
- Olivier Wang *(NYU)*, Let the Worst One Fail: a Credible Solution to the Too-Big-To-Fail Conundrum, June 8
- Song Ma *(Yale University)*, Obsolete Firms, June 7
- Beatriz Mariano *(Humboldt University Berlin)*, Are M&As Good for Directors' Careers?, May 31
- Andreas Fuster *(Swiss National Bank)*, Diverse Policy Committees Can Reach Underrepresented Groups, May 18
- Ulf Von Lilienfeld-Toal *(University of Luxembourg)*, Housing Affordability and Transaction Tax Subsidies, May 17
- Florin Bilbiie *(University of Lausanne)*, Monetary Policy and Heterogeneity: an Analytical Framework, May 11
- Jean Edouard Colliard *(HEC - Paris)*, Financial Restructuring and Resolution of Banks, May 10
- Mark Aguiar *(Princeton University)*, Micro Risk and Pareto Improving Policies with Low Interest Rates, May 4
- Elise Gourier *(ESSEC Business School)*, Capital Commitment, May 3

Media

Members of the Center regularly publish blog posts and newspaper op-eds that can be consulted in ***TSE Debate's section***. Here we feature some of the recent posts.

Debate

Low-cost solar energy

Claude Crampes & Stefan Ambec */ October 5, 2021*

Producing electricity from the sun is a well-mastered technology. This is good news for the climate and an opportunity for people left out of the electrification network. But will it be enough to foster the development of emerging countries?

tse-fr.eu/low-cost-solar-energy

On the rationality of electricity consumers

Claude Crampes & Stefan Ambec */ June 29, 2021*

To balance in real time electrical systems that are increasingly fed by non-dispatchable production sources, we heavily rely on the rational reaction of consumers to market prices. But are we asking too much of them?

tse-fr.eu/rationality-electricity-consumers

The limits of all-telework

Frédéric Cherbonnier */ June 25, 2021*

Covid seems to have launched a profound shift toward teleworking. Some point to the example of families moving to rural areas or the coast and working entirely remotely. As only a minority of jobs could be entirely conducted at distance - nearly 40% according to recent analyses - this trend could generate inequalities and social stratification. And today's Cassandras have voiced fears of seeing the massive replacement of jobs by "tele-migrants" located in countries with lower wage costs. Should we really expect such a revolution?

tse-fr.eu/les-limites-du-tout-teletravail

Blanchard-Tirole report: France must face the future

Olivier Blanchard & Jean Tirole */ June 23, 2021*

As the pandemic spread around the world last year, French President Emmanuel Macron asked former IMF chief economist Olivier Blanchard and TSE's Jean Tirole to preside over an independent commission on the challenges for post-Covid society. Recently delivered to the Elysée, their three-part report focuses on global warming, inequality, and demographic change.

tse-fr.eu/blanchard-tirole-report-france-must-face-future

Do big platforms hold up innovation?

Doh-Shin Jeon */ June 9, 2021*

Interview published by *The Digital Future Society.*

tse-fr.eu/do-big-platforms-hold-innovation-doh-shin-jeon

Organizing the electricity industry

Claude Crampes & Stefan Ambec */ June 7, 2021*

The proposed reorganization of the energy giant EDF has sparked a media debate in France on the future of the electricity industry. Everyone has their own proposals. Given the specificities of electricity production and consumption, no industrial structure is ideal, but not all options are equal.

tse-fr.eu/organizing-electricity-industry

Carbon tax at borders: Europe must act without delay

Frédéric Cherbonnier */ May 20, 2021*

Crises sometimes unblock situations that have been deadlocked for years. The Covid crisis is a perfect example.

tse-fr.eu/taxe-carbone-aux-frontieres-leurope-doit-agir-sans-tarder

Articles

Op-Eds

- **Le nouveau mode de calcul des allocations chômage met en place un système juste, efficace et cohérent**
  Jean Tirole & others, *Le Monde*, October 9
- **Avantages et limites du solaire low-cost**
  Stefan Ambec and Claude Crampes, *La Tribune*, October 5
- **Enfin, un vrai prix pour le carbone !**
  Christian Gollier, *L'Express*, September 23
- **Construire l'économie de demain**
  Olivier Blanchard & Jean Tirole, *Le Grand Continent*, September 13
- **L'objectif de réduction des émissions de gaz à effet de serre doit avoir le moindre impact social**
  Christian Gollier and Jean Tirole, *Le Monde*, September 3
- **Rapport du Giec : Tout va très bien, Madame la marquise !**
  Christian Gollier, *L'Express*, August 10
- **Le Pacte Vert européen, un courageux passage de la parole aux actes**
  Christian Gollier, *L'Express*, July 17
- **Quel est le degré de flexibilité des consommateurs d'électricité ?**
  Stefan Ambec and Claude Crampes, *La Tribune*, June 28
- **Les limites du tout-télétravail**
  Frédéric Cherbonnier, *Les Echos*, June 24

Event - Common Good Summit

- **Finance responsable: quelle rentabilité du capital pour le bien commun ?**
  Catherine Casamatta, *Challenges*, May 28
- **Le casse-tête du coût de la transition écologique**
  Christian Gollier, *Challenges*, May 27
- **8 special pages dossier in Challenges**
  Jean Tirole, *Challenges*, May 27
- **Le Sommet du bien commun les 27 et 28 mai en digital**
  La Dépêche, May 18

Radio/TV

- **Jean Tirole - économiste et tragédien**
  Arte, June 28
- **24H Pujadas, les conseils d'un Prix Nobel**
  Jean Tirole, *LCI*, June 24
- **La Matinale, Interview Olivier Blanchard et Jean Tirole,**
  France Inter, June 24

Interviews

- **La tarification du carbone est la solution**
  Christian Gollier, *Le Point*, October 21
- **La décarbonation de l'économie commence avec l'énergie**
  Stefan Ambec, *Touléco*, Octobre 21
- **Climat, ce qu'il faut savoir**
  Christian Gollier, *Le Point*, October 21
- **Will lab-grown meat ever be tasty and profitable?**
  Nicolas Treich, *Sifted*, October 19
- **Avec la flambée de l'énergie, l'État va-t-il dépenser 2 fois ce qu'il va gagner ?**
  Christian Gollier, *Le Figaro*, October 19
- **Alimentation : les raisons profondes de notre attachement à la viande**
  Nicolas Treich, *Médiacités*, October 11
- **Pour ou contre la taxe carbone ?**
  Christian Gollier, *Ouest France*, Octobre 7
- **Le gaz rend les marchés incandescents**
  Christian Gollier, *L'Agefi - Actifs*, October 7
- **Il ne faut pas cacher le coût de l'énergie au consommateur**
  Christian Gollier, *L'Opinion*, October 7
- **Climat et économie : Christian Gollier répond aux questions de Dimitri Pavlenko**
  Europe 1, October 6
- **Prix de l'énergie : comment le gouvernement veut faire face à la hausse**
  Christian Gollier, *Le Point*, September 29
- **Budget de l'État : La vraie question, c'est l'efficacité des dépenses publiques**
  Emmanuelle Auriol, *Ouest France*, September 22
- **Personne ne sait comment atteindre le zéro émission nette de CO2 en 2050**
  Christian Gollier, *Le Point*, September 21
- **Il n'y aura pas de transition énergétique sans un prix élevé du carbone**
  Christian Gollier, *Le Figaro*, September 16
- **Le scénario du chaos, l'argument clé en faveur de Cigéo**
  Christian Gollier, *Le Figaro*, September 15
- **Les rapports se succèdent et donnent systématiquement des résultats pires qu'annoncés précédemment**
  Christian Gollier, *BFM Business*, August 9
- **Sur les défis fondamentaux, les Français ont la culotte à l'envers**
  Christian Gollier, *Les Échos*, July 9
- **Podcast : comment affronter ces grands défis économiques ?**
  Jean Tirole, *Challenges*, July 7
- **Les ressorts du capitalisme de marché**
  Christian Gollier, *Le Nouvel Économiste*, July 7
- **Un marché carbone européen**
  Christian Gollier, *Le Maine Libre*, June 30
- **La France et ses grands défis économiques**
  Olivier Blanchard & Jean Tirole, *Challenges*, June 24
- **Tirole-Blanchard : comment s'attaquer aux défis du futur**
  Olivier Blanchard & Jean Tirole, *Les Echos*, June 23
- **Quelles réformes pour l'économie de demain ?**
  Olivier Blanchard & Jean Tirole, *L'Express*, June 23
- **Lutte contre le Covid-19, logement... les ravages du principe de précaution**
  Christian Gollier, *Capital*, June 17
- **Il est essentiel de remédier aux nombreuses défaillances de l'économie de marché**
  Jean Tirole, *Challenges*, May 27
- **Le bitcoin chute, les bourses accusent le coup**
  Matthieu Bouvard, *Le Figaro*, May 19
- **On n'échappera pas à la taxe carbone**
  Christian Gollier, *Le Point*, May 10
- **Les cryptomonnaies désormais considérées comme une valeur refuge par certaines entreprises**
  Catherine Casamatta, *Le Monde*, April 29
- **Das Warten auf die Sp(r)itzenleistun**
  Christian Gollier, *WirtschaftsWoche*, April 23
- **Si la France double sa vitesse de vaccination du mois de mars, 61 000 morts pourraient être évités d'ici la fin 2021**
  Christian Gollier, *Atlantico*, April 13
- **La France a-t-elle peur du risque ?**
  Christian Gollier, *Le Figaro*, April 13

Publications

Academic papers

- François Salanié and Vera Zaporozhets, "Water allocation, crop choice, and priority services", *Journal of Public Economic Theory*, 2021, forthcoming
- Felix Bierbrauer, Aleh Tsyvinski and Nicolas Werquin, "Taxes and Turnout: When the decisive voter stays at home", *American Economic Review*, 2021, forthcoming
- Andrea Attar, Thomas Mariotti and François Salanié, "Entry-Proofness and Discriminatory Pricing under Adverse Selection", *American Economic Review, vol. 111, n. 8*, pp. 2623–2659, August 2021
- Stefan Ambec and Jessica Coria, "The informational value of environmental taxes", *Journal of Public Economics, vol. 199, n. 104439*, July 2021
- Manh-Hung Nguyen, Thi Lan Anh Nguyen, Tuan Nguyen, Arnaud Reynaud, Michel Simioni and Viet-Ngu Hoang, "Economic analysis of choices among differing measures to manage coastal erosion in Hoi An (a UNESCO World Heritage Site)", *Contributions to Economic Analysis and Policy, vol. 70, pp. 529–543*, June 2021
- Jean Tirole, "Emmanuel Farhi, Economist Par Excellence", *Annual Review of Economics, vol. 13, pp. 1–1*, June 2021 7

Working papers

- Milo Bianchi and Marie Brière, "Augmenting Investment Decisions with Robo-Advice", *TSE Working Paper, n. 21-1251*, September 2021
- Frédéric Cherbonnier, David Salant and Karine Van Der Straeten, "Getting auctions for transportation capacity to roll", *TSE Working Paper, n. 21-1254*, September 2021
- Frédéric Cherbonnier, "Optimal insurance for time-inconsistent agents", *IAST working paper, n. 21-123*, September 2021
- Fabrice Collard and Omar Licandro, "The Neoclassical Model and the Welfare Costs of Selection", *TSE Working Paper*, n. 21-1246, September 2021
- Milo Bianchi and Henri Luomaranta, "Agency Costs in Small Firms", *TSE Working Paper, n. 21-1252*, August 2021
- Jean-Paul Décamps, Fabien Gensbittel and Thomas Mariotti, "Investment Timing and Technological Breakthroughs", *TSE Working Paper, n. 21-1222*, June 2021, revised July 2021
- Catarina Goulão and Agustín Pérez-Barahona, "Health capital norms and intergenerational transmission of non-communicable chronic diseases", *TSE Working Paper, n. 21-1236*, July 2021
- Claire Borsenberger, Helmuth Cremer, Denis Joram, Jean-Marie Lozachmeur and Estelle Malavolti, "E-commerce, parcel delivery and environmental policy", *TSE Working Paper, n. 21-1230*, July 2021
- Andrea Attar, Eloisa Campioni, Thomas Mariotti and Alessandro Pavan, "Keeping the Agents in the Dark: Private Disclosures in Competing Mechanisms", *TSE Working Paper, n. 21-1227*, June 2021
- Christian Hellwig, "Static and Dynamic Mirrleesian Taxation with Non-separable Preferences: A Unified Approach", *TSE Working Paper, n. 21-1224*, June 2021
- Sylvain Chabé-Ferret, Arnaud Reynaud and Eva Tène, "Water Quality, Policy Diffusion Effects and Farmers' Behavior", *TSE Working Paper, n. 21-1229*, June 2021
- Helmuth Cremer and Jean-Marie Lozachmeur, "Coinsurance vs. copayments: reimbursement rules for a monopolistic medical product with competitive health insurers", *TSE Working Paper, n. 21-1223*, May 2021
- Patrick Coen, "Information Loss over the Business Cycle", *TSE Working Paper, n. 21-1220*, May 2021
- Francesca Barigozzi, Helmuth Cremer and Jean-Marie Lozachmeur, "Gender wage and longevity gaps and the design of retirement systems", *TSE Working Paper, n. 21-1217*, April 2021
- Milo Bianchi, Rose-Anne Dana and Elyès Jouini, "Equilibrium CEO Contract with Belief Heterogeneity", *TSE Working Paper, n. 21-1253*, April 2021
- Christian Gollier, "The welfare cost of vaccine misallocation, delays and nationalism", *Covid Economics, n. 74, pp. 1–24*, March 2021

2nd Sustainable Finance Center Conference

December 2-3, 2021
TSE & online

The TSE Sustainable Finance Center is organizing its second two-day conference on December 2 and 3.

You can join online, or in person at TSE, for thought-provoking sessions on responsible finance and central banks, as well as an inspiring roundtable on shareholder engagement and corporate social responsibility.

The event will also host the FIT IN Initiative inaugural conference with academic presentations on mobile money and financial inclusion, and digital payments and financial services.

Also on the agenda: Keynote speakers:

Jean Tirole
(2014 Nobel Laureate in Economics, TSE)

Jean-Charles Rochet
(Professor of Finance, University of Geneva and TSE).

Free registration and more information at
tse-fr.eu/2nd-sustainable-finance-conference

Jean Tirole

Jean-Charles Rochet

Sustainable Finance Center

Toulouse School of Economics

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