LES CAHIERS DE L'ILB

The Institut Louis Bachelier Research Review

N°4 SEPTEMBER 2011

METTRE LA FINANCE AU SERVICE DE LA SOCIÉTÉ

Special edition

Chaire Finance Durable et Investissement Responsable

With

Stefan Ambec
Edouard Challe
Patricia Crifo
Sylvaine Porret
Jean Tirole

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Sustainable Finance and Responsible Investment Chair's Partners

editorial

The emergence of planetary issues such as climate change, the use of nuclear energy or working conditions in relocated companies calls for global solutions. Alongside international regulation, the limits of which are evident, socially responsible investment (SRI) can be useful for fostering more sustainable development: the decisions not only on financial analysis of the companies in which they invest, but also on an assessment of their non-financial impact on society. In so doing, such investors evaluate the environmental, social and governance policies of companies. Their aim is to obtain adequate financial returns over the long term and to encourage companies to internalize the effects that they have on the environment, their employees and their other stakeholders.

SRI today occupies an important place in financial markets: in Europe, nearly 17% of the funds invested are managed responsibly, according to the Eurosif institute. Yet, there is as yet no consensus on the selection techniques of SRI assets. This finding is in stark contrast to the impressive body of purely financial quantitative assessment tools developed within financial theory over some 50 years. The creation in 2007 of the "Sustainable Finance and Responsible Investment" (FDIR) Chair was an appropriate response to this lack of academic foundation of methods for evaluating and selecting SRI assets and of corporate social responsibility policies.

Directed by Christian Gollier and Patricia Crifo, the FDIR Chair brings together research teams from the IDEI–Toulouse School of Economics at the University of Toulouse 1 Capitole and from the economics department of the Ecole Polytechnique. These teams enjoy an international reputation and conduct multidisciplinary research that combines the economics of the environment, labour and development with psychology and finance. Through the impetus of the Association Française de Gestion Financière (AFG), the work of the Chair benefits from the support of a dozen asset management companies and six other institutions including the Fonds de Réserve pour les Retraites and the Caisse des Dépôts (further information is available on the Chair's website at http://www.idei.fr/fdir). This support is reflected in particular through collaboration with practitioners in order to identify relevant research topics and to allow the strengthening of links between academic research and the concerns of the financial industry and of businesses.

The main questions that structure the research of the FDIR Chair are the problem of measuring the socially responsible character of a company or a financial asset, the financial performance of SRI, and the impact of SRI on corporate behaviour. More specifically, the subjects being researched under the aegis of the Chair include:

- Investors' motivations in regard to SRI, i.e. the psychological mechanisms that induce people to invest in SRI;
- Assessment models of socially responsible assets, based on mathematical models for analyzing financial markets;
- The relationship between companies' financial performance and their environmental and social performance;
- Taking account of the long term in investment decisions;
- The relationship between companies' social responsibility strategy and their financial structure, particularly in relation to the growing importance of institutional investors and hedge funds;
- The impact of responsible investment on corporate strategy and the spread of these practices among shareholders.

The support of its partners has enabled the FDIR Chair to grow by recruiting leading researchers internationally and by organizing a number of conferences oriented toward researchers and professionals. Its work has begun to bear fruit, as is evidenced by this publication, which presents some of the studies carried out by the Chair's researchers.de la chaire.

Patricia Crifo and Christian Gollier
Scientific Directors
of the Sustainable Finance and Responsible Investment Chair

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PRINTER
IRO : Z.I. rue Pasteur
17185 Périgny cedex

Chaire Finance Durable et Investissement Responsable

Environmental innovation and profitability

DO THE GAINS COMPENSATE FOR THE ASSOCIATED COSTS?

Based on an interview with Stefan Ambec and on his paper "Environmental Policy, Innovation and Performance: New Insights on the Porter Hypothesis" (Journal of Economics and Management Strategy, Volume 20, n° 3, Autumn 2011) co-authored with Paul Lanoie[1], Jérémy Laurent-Lucchetti[2] et Nick Johnstone[3].

KEY POINTS

- According to the Porter hypothesis, productivity gains and increased market share often outweigh the costs incurred by polluters in complying with environmental regulations.
- There are many opportunities for firms to improve both environmental performance and economic performance.
- But both theoretical analysis and empirical work suggest that while innovations due to more stringent environmental policies drive innovation and improve companies' environmental performance, they do not always compensate for the total cost engendered by compliance with these policies.

Drawing on a unique survey, Stefan Ambec and his co-authors shed new light on the Porter hypothesis, according to which stringent environmental regulations can foster innovation and thus improve the profits of industries subject to them, thanks to productivity gains. However, they argue that this occurrence is the exception rather than the rule. Socially responsible investors therefore have a difficult, though important, role to play in the selection of companies where environmental innovation goes hand in hand with profitability.

Does protection of the environment have adverse effects on companies' economic performance? This question is relevant for socially responsible investment (SRI). If the answer is negative, then good environmental performance is an indicator of low returns on corporate assets. If it is positive, then environmental performance and financial performance are complementary. Environmental responsibility thus leads to increased valuation of the company. By identifying these complementarities, SRI funds do not have to sacrifice performance to help improve the environment but, on the contrary, can develop a "win-win" strategy.

(1) HEC Montreal
(2) University of Berne and Oeschger Center for Climate Change
(3) OECD

BIOGRAPHY

Stefan Ambec

INRA research director at LERNA (Laboratoire d'Économie des Ressources Naturelles), researcher at the Toulouse School of Economics and a member of the Toulouse Institut d'Economie Industrielle (IDEI), Stefan Ambec is also visiting professor at the University of Göteborg. He obtained a PhD in economics at the University of Montreal. His work focuses on the economics of natural resources and the environment and on industrial economics, and in particular the impact of environmental policies and the sharing of water.

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One way of addressing the question is to test what is common called the Porter hypothesis. According to this hypothesis, put forward by Michael Porter, professor of strategic management at the University of Harvard, more stringent, yet flexible, environmental regulations can, by encouraging innovation, lead to productivity gains that more than offset the initial cost of investment in new technology. "The Porter hypothesis has enjoyed considerable success in the political debate, particularly in the United States, because it challenges the idea that environmental protection can only be implemented at the expense of economic growth", Stefan Ambec explains. "But it has also been strongly disputed by economists in that it questions the paradigm of profit maximization, which is the basis of corporate rationality." Indeed, if it is possible to increase the profits of regulated firms, this means that there would consistently be profit opportunities not known about in the absence of such regulation.

A subject that lends itself to discussion

This controversy has given rise to extensive economic literature on the theoretical foundations that might underlie the Porter hypothesis. In 2007, Stefan Ambec and Philippe Barla carried out a critical review and concluded that the Porter hypothesis is consistent with the hypothesis of corporate rationality only in the presence of an imperfect market (in addition to the negative externality problem constituted by pollution). Among the market imperfections that lead to a situation consistent with the Porter hypothesis, we would mention information asymmetries within the firm (or markets) and the fact that innovation may be considered to be a public good. Environmental regulation can have the effect of reducing inefficiency due to the imperfect market under consideration (as well as inefficiency linked to pollution) for the benefit of all, including the firms that are subject to it.

Thus there are various circumstances in which improved environmental performance, whether or not induced by regulation, may be beneficial to the company. In a paper published in 2008 with Paul Lanoie, Stefan Ambec suggested seven channels through which better environmental performance can increase profits or reduce cost: access to new markets, improved product differentiation, diversification of the business by selling environment-related technologies, lower regulatory costs, production inputs such as energy, greater attractiveness to the labour market and better access to capital, especially through SRI.

A more global approach

In addition, a number of studies have been carried out so as to empirically test the Porter hypothesis. From this literature analyzed by Stefan Ambec and Paul Lanoie in 2008, two approaches emerge: the first finds a positive relationship, though sometimes weak or nul, between the level of environmental regulation and innovation; the second reveals a negative relationship between the level of environmental regulation and productivity, thus tending to disconfirm the Porter hypothesis. "The work presented in this new paper combines these two approaches, allowing us to evaluate, for the first time, the four main elements of Porter's causal chain", Stefan Ambec explains. "This exercise enables us to shed greater light on the circumstances and mechanisms involved, and on the soundness of the Porter hypothesis."

No miracle solution

The authors show in particular that although stringent policies for the protection of the environment help to increase companies' environmental performance, it is flexible policies that seem to be most effective. Flexible performance standards appear better able to foster innovation than dirigiste technology standards (such as making catalytic converters mandatory, for example). The authors also show that environmental regulation encourages firms to increase their investment in R&D, which has a positive effect on their overall economic performance. Unfortunately, however, this indirect positive effect is counterbalanced by the direct negative effect of environmental regulation. "In the words of Porter himself, the economic gains associated with environmental innovation do not offset the costs engendered by regulation", Stefan Ambec says regretfully. Environmental regulation thus results in a net cost to the economy and there is no "miracle solution".

METHODOLOGY

The authors tested the validity of the Porter hypothesis using data covering Porter's entire causal chain: environmental policy, research and development, environmental performance and business performance.

This empirical analysis draws on a database containing observations of some 4,200 establishments with more than 50 employees, representing 24 manufacturing sectors in seven countries (Germany, Canada, USA, France, Hungary, Japan, Norway), derived from a survey conducted by the OECD.

Recommendations
for the public authorities

- Foster innovation in response to environmental pressure through demanding but flexible environmental regulations for businesses, i.e. based on economic instruments such as taxes or tradable allowances.
- Encourage investment in new green technologies, particularly through the development of SRI and environment-related technology transfer.

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Chaire Finance Durable
et Investissement Responsable

The sources of social responsibility

COMPLEX INDIVIDUAL MOTIVATIONS

Based on an interview with Jean Tirole and on his paper "Individual and Corporate Social Responsibility" (Economica n° 77 - January 2010), co-authored with Roland Bénabou[1] .

KEY POINTS

- Corporate social responsibility is the product of the individual motivations of investors and management.
- Psychology reveals the people's virtuous behaviour stems from a combination of motivations: generosity, financial aspirations and self-image.
- People are more inclined to contribute to a "just" cause when they are seen to be doing so by others.
- LFinancial incentives are more effective when the contribution is not observed.

Why do companies adopt socially responsible behaviour? Jean Tirole and Roland Bénabou draw on psychology to show that such behaviour, which depends largely on the will of socially responsible investors or business leaders, stems from complex sources of motivation. This observation leads them to evaluate the usefulness of financial incentives in making individuals and businesses adopt virtuous behaviour, which in turn provides a better understanding of the demand for socially responsible investment funds.

A mathematician by training, Jean Tirole has for the last ten years worked with Roland Bénabou on studies bringing together psychology and economics. They have participated in the development of "new information theory", which enriches the standard economic model by studying the implications of certain basic psychological principles (altruism, imperfect memory, time-inconsistency of preferences, etc.) around the self-manipulation of beliefs. This involves modelling the information that individuals provide themselves with, how they analyze this information, and the decisions they make. "Game and information theory finds a field of application in psychology, one that admittedly is unexpected but is actually quite natural," he says.

(1) Princeton University, Princeton, USA

BIOGRAPHY

Jean Tirole

CNRS gold medal winner in 2007, Jean Tirole was awarded the Claude Lévi-Strauss Prize in 2010 for his work on game and information theory. Chairman of the management board of the Toulouse School of Economics – a University of Toulouse-Capitole research centre – and scientific director of the Toulouse Industrial Economics Institute (IDEI), he is also visiting professor at Massachusetts Institute of Technology, where he obtained his PhD. Jean Tirole also holds a Ponts et Chaussées engineering qualification and is a graduate of the Ecole Polytechique.

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> “Game and information theory finds a field of application in psychology, actually quite natural.”

A growing interest in corporate social responsibility

In this paper, Roland Bénabou and Jean Tirole focus on corporate social responsibility (bringing together social and environmental concerns). “While the invisible hand of the market and the more visible hand of the state have been the subject of much research, we still know little about the economics of corporate and individual social responsibility, despite their growing importance,” they write. “Economists have so far paid insufficient attention to this topic”.

Complex individual motivations

The researchers suggest that corporate social responsibility can be understood in three ways: the adoption by companies of a longer-term vision; virtuous behaviour required of the management of companies by investors – particularly socially responsible investment (SRI) funds – or customers; or philanthropy initiated from within by the management or employees of the companies themselves. “But the last two explanations are based on individual motivations,” says Jean Tirole. “And the virtuous behaviour of investors, consumers and employees is itself due to a complex combination of motives: genuine generosity, extrinsic inducement to behave in certain ways (not least because of legislation or subsidies) and a desire to appear virtuous, i.e. to create a positive self-image (vis-à-vis oneself or others).”

Reputation and monetary incentives

This third factor, self-image or reputation, is all the more important since the behaviour is public (especially in front of people whose esteem is sought) and is likely to be remembered. “Our research has, for example, shown that when the wish to have a positive self-image is strong, a financial incentive may be counterproductive. Contrary to a basic economic principle, in fact it may then reduce the desired pro-social behaviour,” Jean Tirole says. This conclusion has been the subject of related research by a team led by Dan Ariely (then professor of psychology at the Massachusetts Institute of Technology). In a series of laboratory experiments, financial incentives proved to be very powerful when the contribution to the public good was not observed, and had little impact when it was visible to everyone. “People were then afraid that if they were remunerated, their contribution would be interpreted as a sign of greed rather than as generosity, and therefore that the signal they were sending to others would be weakened.”

The demand for socially responsible investment funds

The work of Jean Tirole and Roland Bénabou sheds interesting light on the demand for SRI funds. They suggest that this demand may emanate from several sources. Firstly from pure altruism. “To a certain extent, we all aspire to do good and to make ourselves useful”, Jean Tirole emphasizes. They also show that financial incentives cannot be ignored, with investors in SRI funds expecting a decent financial performance. Finally, their work shows that investing in SRI is a way of gaining social prestige. They thus suggest that SRI funds may boost demand for financial products based on investors’ desire for a positive self-image, through, for example, suitable advertising campaigns or an appropriate design of funds.

METHODOLOGY

Jean Tirole and Roland Bénabou have drawn on recent developments in the psychology and economics of virtuous behaviour to explain the motivations underlying people’s social responsibility.
These motivations appear to be linked to altruism and to self-image. The researchers then establish a linkage between individual concerns and socially responsible corporate behaviour. Finally they discuss the benefits, costs and limitations of using social responsibility as a way of achieving higher social goals.

Recommendation

for the public authorities

- The sources of socially responsible behaviour are mutually interdependent. Policy makers and social activists need to understand these interactions in order to count on the willingness of individuals to behave in a socially responsible manner.
- This study shows that, for their social and environmental policies to be more effective, it is in the interest of the public authorities to subsidize private behaviour, which is not observed by other people, rather than public behaviour, where reputation comes into play. “It is better to subsidize an environmentally friendly household boiler (whose ownership is not conspicuous) than a hybrid car (which is visible to everyone)," Jean Tirole says.

Further reading

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Chaire Finance Durable
et Investissement Responsable

Fair trade in mass retail

MYTHS AND REALITY

Based on an interview with Sylvaine Poret and on her paper "Mainstreaming Fair Trade: A discussion through the Lipton case" (in Corporate social responsibility: from compliance to opportunity, Patricia Crifo and Jean-Pierre Ponssard (eds.), Editions de l'Ecole Polytechnique, 2010).

KEY POINTS

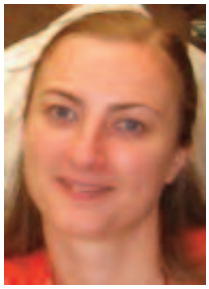
- Some fair trade actors are opposed to "Fair Trade" certification for products sold in supermarkets, since this allows conventional manufacturers to sell a product in their certified range, although the rest of their production is not certified.
- However, selling in supermarkets reaches a wider public and achieves one of the goals of fair trade, namely enabling small producers in the South to earn their living by selling the fruits of their labour.
- Unilever is trying to reconcile these two viewpoints by certifying all products of the Lipton brand, sold throughout the world. To this end, the company has worked with an NGO which includes social and economic criteria as well as environmental criteria in its remit, but is not recognized as falling within fair trade. The main difference from Fair Trade certification is that the Rainforest Alliance does not guarantee a minimum price to producers.

Fair trade has undergone very strong growth over the past 20 years, thanks largely to the creation and expansion of fair trade certified food products sold in supermarkets and hypermarkets. This development in traditional retail channels is giving rise to considerable debate among the various fair trade actors. Sylvaine Poret illustrates this controversy by examining the case of the certification of Lipton teas by the NGO Rainforest Alliance.

Sylvaine Poret reminds us that fair trade emerged in Europe in the late 1960s and that the aim was to "reduce poverty in the South by building direct and lasting relationships with disadvantaged producers and to provide them with fair access to the markets of the North". The products were then sold in local shops whose operation relied largely on volunteers. Then in the 1990s many "Fair Trade" certified products began appearing in supermarkets and hypermarkets. This development allowed fair trade to reach a wider public and enhance its re-

BIOGRAPHY

Sylvaine Poret



The holder of a doctorate in economics from the University of Paris Panthéon-Sorbonne, Sylvaine Poret is a researcher at INRA and research associate in the Department of Economics at the Ecole Polytechnique. Her research interests include industrial economics, economic analysis of law, and fair trade and genetically modified organisms. [sens à vérifier… le texte français me semble ambigu]

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> “The consumer buys a better quality product without paying more.”

putation. In addition, the author notes that there has been a sharp increase every year in the number of certified products. Economically, this is a sign of success for the concept, but it also risks creating confusion and loss of credibility among consumers, in that this expansion has been accompanied by the proliferation of labels making reference, in varying degrees, to fair trade.

The debate on fair trade in mass retail

This new type of fair trade is, however, giving rise to debate and has been particularly criticized by certain long-term actors in the area. Sylvaine Poret explains that “these actors reject the idea of selling in mass retail outlets on the grounds this would amount to working with the people against whom fair trade is struggling: the big players who benefit from the system. They also emphasize the poor working conditions faced by supermarket and hypermarket employees and the fact that the referencing of these products in mass retail outlets is not sustainable, but is regularly called into question.” Moreover, the author draws our attention to the difference for a company between certifying one product in its range “fair trade” and having an equitable approach in its business as a whole. She then raises the question of “whether conventional companies can justifiably use the fair trade logo to valorize some of their products.”

Lipton: large-scale fair trade

Sylvaine Poret notes that Unilever has an innovative approach to fair trade. “Unilever management decided to see to it that not just one or two products in the Lipton range are fair trade certified, but that all teas of the Lipton brand, sold in all countries of the world, obtain this type of certification by 2015, without increasing the selling price to consumers," she says. Rainforest Alliance was not the best known of the NGOs working on fair trade certification, yet it was selected by Unilever to obtain this certification because the constraints imposed by Rainforest Alliance in environmental and social terms closely matched the tea market and Unilever's requirements.

A fruitful alliance

Today, with some years of hindsight since the beginning of this "collaboration" between Unilever and Rainforest Alliance, the author notes that the project appears to be a success and that all the actors seem to be reaping the benefits. Some tea producers and plantation employees have better working and life conditions, the NGO has become more widely known and has enabled, in alliance with the world leader in the sector, part of the tea market to be converted to a sustainable approach. Lipton, for its part, has improved its image and gained market share and referencing with Air France, McDonald’s and Starbucks. Finally, the consumer buys a better quality product without paying more, mainly because of the elimination of intermediaries between producers and the manufacturer. Unilever’s initiative is all the more interesting because it is part of an overall social responsibility approach on the part of the company: it has, for example, decreased the salt content in some of the ready-made meals sold by the group. Moreover, encouraged by the success of the Lipton initiative, “Unilever currently has an equivalent certification project for palm oil, a raw material that is much more difficult than tea to produce in a sustainable way, and it is even more difficult to valorize with consumers,” Sylvaine Poret tells us.

METHODOLOGY

The study of the alliance between the multinational Unilever and the NGO Rainforest Alliance allows Sylvaine Poret to highlight the various arguments in the controversy over products labelled "Fair Trade" but manufactured by large industrial groups and sold in mass retail outlets.

Recommendations for companies

- Consumers are increasingly sensitive to environmental problems and production conditions in developing countries. Companies should now include these concerns in their strategy.
- It is quite natural, therefore, that consumers are oriented towards fair trade for certain products. But with the proliferation of certifications leading to confusion among consumers, there is a risk that they may lose interest in this approach. Such profusion may thus be counter-productive.

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Chaire Finance Durable et Investissement Responsable

Corporate Social Responsibility

COMBINING PRACTICES TO IMPROVE CORPORATE PERFORMANCE

Based on an interview with Patricia Crifo and on her paper "Complementarity between CSR Practices and Corporate Performance: an Empirical Study" (in Corporate Social Responsibility: from Compliance to Opportunity, P. Crifo and J. P. Ponssard (Eds.), Editions de l'Ecole Polytechnique, May 2010), co-authored with Sandra Cavaco[1].

KEY POINTS

- The paper identifies socially responsible practices which, when combined, have a positive impact on performance and therefore on long-term profitability.
- It also identifies good practices that function better when not combined, but which have a lesser impact on performance.
- This study reveals the advantages to companies themselves of CSR policies. It thus provides the public authorities with additional arguments.

Does corporate social responsibility improve companies' performance? To answer this question, Patricia Crifo and Sandra Cavaco examine combinations of CSR practices and show that certain synergies are indeed likely to have a positive economic impact for companies.

Patricia Crifo and Sandra Cavaco focused on the complementarity between various socially responsible practices and corporate performance. "The empirical relationship between corporate social responsibility (CSR) and performance has received considerable attention over the past 35 years, but no consensus has emerged as to whether or not CSR enhances corporate performance. To shed light on this issue, instead of analyzing the impact of a single CSR dimension taken in isolation, we examine how the combination of these practices can make companies more efficient, and try to identify which ones."

A key issue

For Patricia Crifo, it is essential to abandon the strictly financial approach and to integrate environmental economics, labour economics and the economics of governance in order to identify synergies favouring CSR investments and how government policies can encourage these. "Following the work of the American

(1) Laboratoire d'Economie Moderne (LEM), University Panthéon-Assas

BIOGRAPHY

Patricia Crifo

Patricia Crifo graduated from ENS Cachan, and holds an agrégé qualification in economics and management and a doctorate from the University of Lyon-II. She carried out post-doctoral studies at the Institute of Economic Research (IRES, University of Louvain-la-Neuve, Belgium). Now a university professor, she teaches at the University Paris Ouest (Economix) and at the Ecole Polytechnique (Preg Ceco) and is also an associate external member of Montreal Interuniversity Centre for Research, Liaison and Knowledge Transfer in the Analysis of Organizations (CIRANO). A member of the Economic Council for Sustainable Development (CEDD) and of the Commission of Accounts and of the Economics of the Environment, Patricia Crifo is joint holder of the Sustainable Development and Responsible Investment Chair (FDIR).

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> “Le lien empirique entre la RSE et la performance a reçu une attention considérable ces 35 dernières années.”

economist Robert Solow, it seems that growth in the period 1980-90 was based on a combination of technological innovation, organizational change and increase in the level of human capital,” she said in an interview published in Le Monde on May 18, 2010, in the context of the 2010 Best Young Economist Award, for which she had been nominated. “The question facing us in the present decade is whether sustainable growth can result from the combination of environmental technologies, more responsible corporate governance and innovative human capital management.”

Synergies synonymous with improved performance

Patricia Crifo believes that the identification of complementarities or substitutabilities between different CSR practices is crucial, especially for socially responsible investment methods based on “best-in-class” approaches (selection of pro-active companies). "This research shows precisely there are complementarities between the social, environmental and governance components that are profitable in terms of financial performance for the company.” She cites the example of Ford Motor Company, which invests in a consistent way in order to exploit the complementarities of different dimensions of CSR. “This company is renowned for its social policy. It invests in HR, but also in the entire value chain. Ford extends all its requirements to its suppliers and also tries to improve information and transparency vis-à-vis its customers.”

Trade-off strategies can also be profitable

But there are also negative interactions between certain dimensions of CSR. “Companies like Walmart therefore prefer to use trade-offs... with considerable success! The hard discount leader in the United States thus invests extensively in environmental concerns, but exerts very strong pressure in terms of labour relations and the supply chain to support its low-price policy.” But though, like Walmart, some companies may be tempted to focus on specific aspects of CSR rather than investing in several dimensions simultaneously, Patricia Crifo emphasizes that Walmart’s high profitability is based on the short term. “It's an economic model suited to a market in which the aim is to reduce costs, including human costs,” she believes. “It is not clear if such as model is sustainable and profitable in the long term. We will have to see whether they are faced by social crises in the next ten years, as has already happened in the past.” And choosing this trade-off model is all the more questionable, in that Patricia Crifo and Sandra Cavaco show that the combination of complementary CSR factors seems to improve performance much more.

METHODOLOGY

To reveal the combination of social and environmental practices likely to reduce costs and improve corporate profitability, Patricia Crifo and Sandra Cavaco carried out an empirical analysis of a data set combining environmental, social and governance variables from the Vigeo database (a European non-financial rating agency, which measures corporate performance in terms of sustainable development), and variables relating to economic and financial performance from the Orbis database (an economic monitoring and financial analysis tool covering over 60 million companies worldwide).

Recommendations

- **For public authorities**: It would be interesting to improve information and transparency in order to find out which levers companies rely on to define their investment strategy in CSR practices. Companies can be encouraged to communicate and to practice accurate reporting of the various dimensions of CSR.

- **For public authorities**: It is important that companies and investors deploy a coherent CSR policy. Trying to invest in the various aspects of CSR is essential, but by considering them as coherent parts of an overall policy and not as independent dimensions. Market leaders and investors should focus on synergies and trade-offs to define their strategy, particularly in regard to socially responsible investment based on "best-in-class" methods, which are widespread in France and Europe.

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Chaire Finance Durable
et Investissement Responsable

Discounting

RECONCILING FINANCE AND SUSTAINABLE DEVELOPMENT

Based on an interview with Christian Gollier and on his paper "Ecological Discounting" (Journal of Economic Theory n°145, March 2010).

KEY POINTS

- Discounting, the effect of which is exponential, is generally viewed as incompatible with the idea of sustainable development, because the impact of sustainable investment projects becomes apparent only in the long term, unlike projects based on purely financial considerations.
- To be compatible with the inter-generational optimum, the discount rate of projects with an environmental component should be lower than that of financial projects.

Discounting, which has long been a key tool in support of decision-making, was previously not suitable for investment projects with an environmental component. Christian Gollier shows, however, that by using an appropriate rate, discounting would allow sustainable development to be reconciled with a purely financial approach and so encourage businesses to make greater efforts to protect the environment.

By bringing its future value into line with a current equivalent, discounting allows the relevance of actions having effects spread over long periods to be evaluated. This procedure is thus an important tool in support of decision-making. "The subject of this paper is to determine how best to value impacts far into the future in the decision-making process," explains Christian Gollier. "It complements a series of studies that I have conducted over the past ten years on the links between sustainable development and finance. The ultimate goal is to find out what should be the intensity of effort undertaken today to improve the well-being of future generations, in the very long term, in order then to decide which projects to invest in as a priority: reduction of greenhouse gas emissions, research and development, improvement of community infrastructure, youth education, etc. This work also aims to give an operational meaning to corporate environmental responsibility."

What projects should be invested in today?

To carry out this balancing act, Christian Gollier uses cost-benefit analysis, a tool that allows individual and collective choices in terms of investment to be optimized, but here takes into account the impact on the environment. "We consider the costs and benefits of each possible action. Among the benefits, there are purely financial benefits – for instance, when you invest in a nuclear power plant you have lower production costs. But a nuclear power plant also

BIOGRAPHY

Christian Gollier

Christian Gollier is currently Director of the Toulouse School of Economics, a senior member of the Institut Universitaire de France, a researcher at and former director of the Laboratoire d'Economie des Ressources Naturelles – a research unit in the economics of the environment associated with the INRA and the CNRS – and Research Director at the Institut d'Economie Industrielle. He is one of the authors of the report of the Intergovernmental Panel on Climate Change, which won the Nobel Peace Prize in 2007.

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> “Socially responsible investment (SRI) funds can have an impact on incentives for firms to incorporate extra-financial performance over the long term.”

has environmental costs related to nuclear risk and benefits due to the absence of CO2 emissions, all spread out over a long time period. We therefore have to be compare this investment with other types of investment, which have very different impacts, both in kind and in terms of their temporal horizon."

Are discounting and sustainable development incompatible?

The difficulty lies in using economic tools to good effect in the context of sustainable development. Because, as Christian Gollier points out, “environmentalists are often sceptical about the use of cost-benefit analysis for the formulation of environmental policies, since economic assessment does not take sufficient account, in their view, of environmental damage incurred in the distant future. Either due to an underestimation of the impact, or due to a too high discount rate.” Long used in finance, the discount rate has so far proved incompatible with the inclusion of long-term effects, because discounting has an exponential flattening effect. “If we use the conventional discount rate of 4%, damage of one euro in a year’s time is equivalent to immediate damage of 96 cents. If this damage occurs in a century’s time, it is only worth less than 2 cents in economic calculations,” he explains. “The discount rate anticipates economic growth, but should it also anticipate a potential deterioration in the quality of the environment.”

A lower, more effective discount rate

Christian Gollier has long worked on this problem, especially with Martin Weitzman of Harvard University. According to them, since the benefits and costs of investments such as those aimed at reducing greenhouse gas emissions become apparent in the long term, the rate at which they must be discounted should be lower than the rate normally used in finance. They justify their recommendation on the basis of the very high uncertainties prevailing around economic progress. A lower rate should also be used to discount the environmental impacts in evaluating projects, given the poor prospects of improving the quality of our environment. Otherwise, the environmental benefit from projects related to the fight against global warming, as in the case of public policy for social and environmental benefits, would be too low in relation to the joint interest of present and future generations. “This is where socially responsible investment (SRI) funds can have an impact on incentives for firms to incorporate extra-financial performance over the long term,” Christian Gollier says. “By refusing to invest in environmentally irresponsible businesses, i.e. those that do not sufficiently value the long-term environmental benefits of their investments, the existence of SRI funds has the effect of increasing the cost of capital for these companies.”

METHODOLOGY

How does one take account of sustainable development in the evaluation of investment policies of companies, investors and the state? The short answer is: the discount rate. But if this is high, as is often the case in financial markets and in conventional economic theory, the long-term impacts will be very poorly represented in the evaluation. Christian Gollier solves this problem by incorporating into the analysis a non-financial dimension (such as environmental quality) as a determinant of collective well-being. He shows that the environmental benefits and costs should be discounted at a rate lower than that used for financial cash flows. He estimates the environmental discount rate at 1.5% (against 3.2% for consumer goods) by using data on the relationship between biodiversity and economic development.

Recommendations for public authorities

- This study shows that a different discount rate should be applied to projects with an environmental component. Governments are beginning to take this into account, as they did in scaling back the customary discount rate in 2005 following the publication of previous work by Christian Gollier and other economists.
- But this does not mean that governments can stop encouraging companies to take account of extra-financial impacts through incentives such as a carbon tax or sector support with SRI funds.

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The financial sector

LIMITED SOCIAL RESPONSIBILITY?

Based on an interview with Edouard Challe and on his paper "Leverage, excessive risk-taking, and financial instability" (chapter 2 of CSR and the Long Run in the Aftermath of the Financial Crisis, by Patricia Crifo and Jean-Pierre Ponssard, publication by the Ecole Polytechnique, 2010).

KEY POINTS

- In the case of banking, excessive risk-taking falls within corporate social responsibility, since losses are socialized.
- Linked, among other things, to the limited liability enjoyed by banks and those who finance them, excessive risk-taking has been responsible for all the recent crises, which have increased over the last 25 years as a result of deregulation of the sector.
- For want of regulating the banking sector, which has always been a step ahead of the regulators, macro-prudential policies could help reduce risk-taking.

BIOGRAPHY

Edouard Challe

Holder of a doctorate in economics from the University Paris Ouest Nanterre, Edouard Challe is a research fellow at the CNRS (HDR) and teaches economics at the Ecole Polytechnique. He was previously a consultant for the Bank of France. His research focuses on the macroeconomics of the banking sector – the behaviour of financial intermediaries and their role in the formation of bubbles and how they can change their behaviour, as well as the phenomenon of rent capture by the financial sector (contribution to wage inequality, the problem of allocation of human capital) and the role of precautionary savings in the cycle.

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The financial sector's corporate social responsibility has played a part in every crisis for the last 25 years. Given that banks have enjoyed limited liability (especially because their losses have been systematically socialized), Edouard Challe argues that they have tended to take excessive risks. For want of stricter regulation being introduced, the researcher hopes that macro-prudential policies will in future be able to mitigate these excesses.

Edouard Challe is interested in the role of banks in triggering bubbles, particularly the fact that they take too many risks and thus tend to push up the price of certain assets even if it means endangering their own solvency. Appropriately, therefore, his work is featured in the book CSR and the Long Run in the Aftermath of the Financial Crisis, devoted to Corporate Social Responsibility (CSR). "The governance of businesses in the banking sector is a major aspect of social responsibility," says the author. "In a certain respect, we can link excessive risk-taking to a problem of governance: the incentives of some intermediaries (including investment banks) are not necessarily aligned with the interests of stakeholders, shareholders and, more broadly, society as a whole, since the losses of the banking sector are socialized."

Risk-taking, the origin of recent crises

Edouard Challe finds that there has been a resurgence of crises since the 1980s, a period that corresponds to the phenomena of financial liberalization in most countries. "People's eyes tend to be fixed on the subprime crisis, the daughter of all crises, but what has happened

> “Macro-prudential policy can help limit risk-taking, but certainly cannot eliminate risk.”

since 2008 is only a magnified version of the crises that had occurred previously,” he maintains. “And each time, we see similar behaviour on the part of the financial intermediaries. For example, their tendency to rely heavily on leverage, that is to say, they inflate their balance sheets by borrowing a lot and lending on a massive scale: the risks taken are high during periods of strong growth. Financial crises occur when an adverse shock makes the bubble burst.”

Limited responsibility?

The paper’s central argument is that intermediaries are partially protected by their limited liability. There is a limit to the losses they can suffer, but not to the gains they can reap. “It is always tempting to take more risks in this configuration, because doing so offers a chance of getting high returns, while passing on part of any losses to lenders of last resort or to the taxpayer in the event of a government bailout,” says Edouard Challe. “This tendency can be observed in absolutely all crises.” But Edouard Challe but does not clearly see how to reverse this limited liability, “one of the pillars of modern capitalism”, which is nevertheless also one of the main sources of such excessive risk taking. "It is the factor I emphasize in particular, but there are others: the fact, for example, that large banks are implicitly guaranteed by government intervention, and other factors such as the remuneration of traders and ‘the front office’, based on bonuses (...). It is very difficult to put in place systems of economic policy that counter these trends.”

Is the financial sector untouchable?

And though Edouard Challe recognizes that the path taken, especially in the United States, has not been that of strengthening financial regulation, he remains hopeful. “There is always this reflection about macro-prudential policy at the level of central banks throughout the world, and I think it can evolve in the months and years ahead into taking better account of interdependencies, for example between monetary policy and financial stability.” One of the measures that has been proposed is to introduce higher capitalization ratios, which would vary over the cycle. This would protect banks against failure as well as those lending them money, and it would also encourage financial intermediaries to take less risk when they are most tempted to do, i.e. during booms. But Edouard Challe remains cautious. “Macro-prudential policy can help limit risk-taking, but certainly cannot eliminate risk. Especially while there is a continued problem of financial innovation. The subprime crisis may be attributed to an almost systematic delay in regulation of the financial industry, which is able to invent products and thus take greater risks by circumventing existing regulatory systems.” In the United States, the increase of the supply of high-risk financial products by financial institutions was partly in response to an increased demand for these products by non-financial agents, which was itself favoured by certain economic policies (for example, access to home ownership).

METHODOLOGY

Edouard Challe uses simplified mathematical models to show the relationship that exists between bubbles and the balance sheets of financial intermediaries in the markets.

He notes in particular how the feedback loop between prices and expectations can lead to bubbles, multiple equilibria and the possibility of the failure of intermediaries.

Recommendations

for public authorities

- Even though they are difficult to implement, enhanced financial regulation and a policy against the leverage effect and excessive risk-taking by intermediaries traditionally subject to little regulation (investment banks, "the shadow banking system") seem to be necessary measures.
- At the very least, the introduction of macro-prudential policies as well as closer supervision of markets could help limit the excesses of the financial sector.

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CONFERENCE

of the "Sustainable Finance and Responsible Investment" Chair

on 11 october 2011 from 2h30 ? to 6h30

on the premises of Groupama AM
(58 bis, rue La Boétie, 75008 Paris).

The conference will open with a presentation by Marcel Boyer, holder of the Bell Canada Chair in industrial economics at the University of Montreal and an economist of international renown. This plenary session will be followed by two round tables. The first round table will focus on the topic "Long-term Responsible Investment" and will address the following questions:

- Are the financial markets short-termist?
- Do SRI funds have a long-term time horizon?
- How do we approach the social evaluation of actions involving sacrifices for some generations and benefits for others?

The second round table will deal with the topic "Social Responsibility and Corporate Performance" and will focus on the following questions:

- What are the relevant indicators of social responsibility?
- How do societal rating agencies measure non-financial performance?
- Does a company's social responsibility affect its cost of capital?

The book Corporate social responsibility: from compliance to opportunity, eds. P. Crifo and J-P. Ponssard, published by Editions de l'Ecole Polytechnique in May 2010, reflects the research carried at the Ecole Polytechnique on social and environmental responsibility. Drawing on regularly held workshops, conferences and working groups involving institutional investors, pension funds, asset managers, rating agencies, public bodies, companies and academic researchers, this book comprises sixteen contributions organized into four major parts:

- Governance and Financial Regulation: lessons from the crisis
- Corporate Social Responsibility and Financial Performance: where do we stand?
- Sectoral Risks and Companies: climate change, health and nutrition
- Businesses and Local Communities: the limits of financial performance

In his new book Pricing the future: The economics of discounting and sustainable development (forthcoming 2012, Princeton University Press), Christian Gollier lays the scientific foundations of sustainable development. This notion is central to the concerns of citizens, politicians and businesses and can be summarized in a single question: what should we do for future generations? In other words, it is a matter of organizing the functioning of our society in such a way as to achieve the best balance between the needs of present generations and their social responsibilities towards future generations. There are many ways to improve the future. But at decision time, is it preferable to limit the extraction of non-renewable natural resources, to invest in productive capital, or to improve the education system? This book makes uses of cost-benefit analysis, a relatively simple, transparent and objective tool, to address these critical questions.

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