Chaire Finance Durable et Investissement Responsable

Research synthesis 2010

ASSOCIATION FD&IR

ÉCOLE POLYTECHNIQUE

WORK GROUP 1: Financial markets, investment strategies and responsible finance

The research of the work group on "Financial markets, investment strategies and responsible finance" is related to three basic questions that are relevant to socially responsible investments (SRI). What is the nature of the demand for SRI funds? What type of strategies do SRI funds use and how do they impact financial asset prices and corporate behavior? How can one value the social responsibility of an investment, be it a stock, a corporate bond or a sovereign bond? As explained in the annual report 2010, these three questions are tranversal and relate to various research topics of interest to the sponsors of the Chair highlighted in a February 2010 document on the Chair's research priorities and objectives.

1. *Nature of the demand for SRI funds*

The demand for socially responsible funds arises from two types of investors: institutions, such as pension funds or sovereign funds, and individual investors. These different investors may have very different underlying motivations. Institutions' rationale for investing in SRI may derive from political issues, reputation concerns, or the fear of pecuniary externalities within firms in well-diversified long-horizon portfolios. Individual investors may be inclined to invest in SRI for psychological reasons related to altruism or to self-image concerns.

a) *On the institutional demand for SRI funds*

Institutional investors usually have a long-term horizon and invest in a large portion of the assets available in financial markets. According to Benabou and Tirole (2010), investing in firms with sound Corporate Social Responsibility (CSR) policies can alleviate issues related to the existence of limits to governance and managers' temporal horizons. As argued below, these investments in CSR can turn out to be beneficial, not only for society but also for investors themselves. As a large literature in finance has emphasized, firms often suffer from a short-term bias. This may be due to poorly structured managerial incentives, but such biases can also result from well-designed schemes. First, monetary incentives often put more weight on short-term than on long-term performance. Although the recent crisis has brought more widespread recognition of the hazards that short-term-oriented compensation schemes create for corporations and society, some dependence on current or recent firm performance is inevitable. Second, decisions by boards and shareholders about whether to keep current management, change it or alter the scope of its activities are also necessarily based in part on recent observation (even if some of the long-term impact of managers' actions may filter through long-term indicators such as the stock price). Thus career concerns also generate some short-term biases. In practice, short-termism often implies both an intertemporal loss of profit and an externality on stakeholders. That is, managers take decisions that increase short-term profit, but reduce shareholder value and hurt workers or other constituencies. For example, a firm may renege on an implicit contract with its labor or suppliers so as to reduce costs, thereby damaging goodwill making it more difficult to attract motivated workers in the future, or to induce suppliers to make relationship-specific investments. To the extent that SRI funds push forward the need to

implement CSR policies, these funds can contribute to overcome the short term bias in firm's decisions. This suggests that socially responsible investors should position themselves as long-term investors who monitor management and exert voice to correct short-termism.

For SRI funds to be able to promote long term objectives, Casamatta and Pouget (2010) argue that a proper incentive structure needs to be offered to the fund managers. As in the case of firm managers, fund managers compensation is linked to short-term as well as long-term portfolio performance. A widespread view in the financial industry is that relying on short term performance makes it harder to implement a long term strategy. For instance, a Socially Responsible Investment fund manager reports "The big difficulty is that a lot of the reputational issues and environmental issues play out over a very long period of time [...] and if the market isn't looking at it you can sit there for a very long time on your high horse saying 'this company is a disaster, it shouldn't be trusted 'and you can lose your investors an awful lot of money... " (Guyatt (2006)). Proper compensation schemes in SRI funds needs to strike the appropriate balance between short-term compensation, necessary for the manager to meet his or her needs, and long-term compensation, necessary for the manager to embrace a socially responsible perspective.

A growing body of literature shows that stock prices do not fully reflect environmental, social, governance and other intangible assets such as R&D expenditures. These empirical results are often interpreted as evidence of market inefficiencies due to the intangible nature of the information under study. Casamatta and Pouget (2010) offer an alternative hypothesis based on the long-term nature of the information under study (the operational items cited above are more likely to improve long-run than short-term financial performance). They argue that the slow incorporation of information is a result of stock market short-termism due to short-term compensation. Short-term compensation is inevitable unless fund managers are patient and share the long-term prosocial inclination of the fund. To be performing well and fulfill their long-term fiduciary duty, SRI funds would thus be well inspired to recruit managers with strong prosocial orientations.

b) *On the individual demand for SRI funds*

From an individual investor point of view, investing in SRI funds falls in the domain of prosocial behavior. Benabou and Tirole (2010) sheds some light on the complex mix of interdependent motivations that underlies prosocial behavior and can thus be helpful to better understand the demand for SRI funds. First, investing in SRI funds may be driven by genuine, intrinsic altruism: to varying degrees, we all aspire to do good and help. Second, material incentives may also come into play: we are more likely to give to charities if contributions are tax-deductible. In the same vein, investors will be more likely to invest in SRI funds if their financial performance is not at odd compared to the one of traditional funds. Recent evidence indicates that SRI funds or financial assets do not significantly underperform traditional ones and may sometimes outperform in the long-run. These results suggest that the demand for SRI funds will increase as the information concerning their performance will gradually be disseminated among investors. Third, investors may also be driven by social image concerns. Our conduct defines what kind of person we are, in the eyes of others and, no less importantly, in our own eyes. Anonymous gifts are widely considered to be most admirable, and yet they typically represent a small portion of the total number of donation. The implied conclusion that buying social prestige is part of the incentive to engage in prosocial behavior is confirmed by several experiments. These findings suggest

that SRI funds could increase the demand for their products by leveraging on social-image concerns of their investors.

Recent experiments demonstrate that self-image concerns are also important motivators for prosocial behavior: we act prosocially in part to reassure ourselves that we are good people. These experiments point to the idea that self-signals play an important role. Accordingly, one would expect the cost to self-esteem incurred from selfish actions to be magnified when these become more salient or memorable. This discussion points to a potential role of socially responsible investment, and other 'good citizenship' modes of consumption and saving. When self-views are involved, we are very good at deception, inattention and rationalization. One virtue of SRI products and their widespread diffusion is that they provide frequent reminders of things that we prefer not to think about, such as poverty, injustice, or the environmental impacts. In turn, these reminders may increase the demand for SRI funds.

There are at three potential elements on the 'dark side' of exploiting social- and self-image motives to spur SRI. First, the efficacy of publicizing people's good and bad deeds is, in a sense, self-limiting. As publicity is scaled up, people discount the meaning of prosocial acts, attributing their motivation more to image-seeking and less to altruism. Second, another cost relates to individuals' choice of signals. Giving is heavily distorted toward the more visible or memorable targets: Americans, for instance, donate substantial amounts to Harvard, Yale, Princeton and other well-known alma maters, but far less to primary and secondary schools. This pleads in favor of making socially responsible investments more salient in order to enhance their visibility and availability in investors' mind. Third, the quest for social prestige or the enhancement of self-image is, in itself, a zero-sum game, in the parlance of sociologists, a positional good. The buyer of a hybrid car feels and looks better, but makes his neighbors (both buyers and non-buyers of hybrid cars) feel and look worse, a 'reputation stealing' externality. In the limit, when everyone invests in socially responsible investments, no one gets credit for it.

The framework developed in Benabou and Tirole (2010) may also be applied to institutional investors. In the jargon of professional investors, "altruism" is often replaced by "commitment to improve the environmental, social and governance policies of firms", "material incentives" by "enhanced long-term returns", and "social-image concern" by "reputational issues".

Aside from altruism, self-esteem, and social image, individual investors' demand for SRI funds is likely to be influenced by trust. Heimann, Bonnefon, Mullet, and Pouget (2010) argue that adopting SRI criteria in their investment policies has a positive impact on investors' trust towards a fund.

Experimental results reported by Heimann et al. (2010) indicate that the perceived trustworthiness of an investment fund depends on the values promoted by the fund. It is not enough for a fund to label itself as socially responsible in order to benefit from investors' trust. The fund has to explicit its basic socially responsible policies and investors' trust will increase with the degree of similarity between the values of the fund and those of investors. In other words, the more investors share the values promoted by a fund, the higher their level of trust towards the fund. To the extent that different investors have different values, this result calls for the creation of specialized funds that can cater to different investment segments.

2. SRI funds' investment strategies and impact on corporate behavior

One important question that SRI funds have to address is related to the type of strategy they should implement. A corollary issue regards the real impact of SRI investors. Two major SRI strategies, best-in-class and engagement, have been studied by Gollier and Pouget (2010). A best-in-class strategy potentially invests in all the available market segments and industries but over-weights the companies or the assets with the best CSR practices. An engagement strategy is similar to an indexing strategy in which funds dialogue with firms (through personal communications with executives, proxy votes, or nomination of board members) in order to enhance their practices on various environmental, social, and governance issues. Gollier and Pouget (2010) examine the impact of SRI on firms CSR policies and on the pricing of their financial assets. They also study the consequences of the socially responsible orientation of a fund for its financial performance. One argument in favor of the

a) *Best-in-class strategies*

By altering their portfolio allocation towards responsible assets (voting with their feet), best-in-class SRI funds can decrease the equilibrium cost of capital of responsible firms, thereby inducing them to behave more responsibly. Implications for various CSR issues can be derived. Consider, for example, the climate change issue. In the Stern Review (2007), the damage generated by the emission of greenhouse gases in the business-as-usual scenario is estimated to be equivalent to an immediate and permanent loss of the world GDP by an amount comprised between 5% and 20%. At the same time, Stern estimates that most of these consequences could be eliminated by an immediate and permanent sacrifice of 1% of the world GDP, invested in alternative/new technologies to reduce emissions. Thus, for the application of climate change, we can estimate the ratio immediate cost to future benefit as being somewhere between 5% and 20%. Gollier and Pouget (2010) analysis suggests that social efficiency could be obtained if the proportion of SRI investors is larger than this ratio.

Traditional investors can counterbalance the strategy of SRI funds, and might rebalance their portfolios in favor of "vice assets" because of their relative increase in expected return. Overall, it is thus not clear whether best-in-class strategies can affect firms' cost of capital. However, Gollier and Pouget (2010) show that, at equilibrium, best-in-class SRI funds investment policy does induce more responsible assets to have a higher market capitalization.

b) *Engagement strategies*

To better understand the potential impact of SRI funds on corporate behavior, it is interesting to study investors' engagement strategy and impact. Gollier and Pouget (2010) analyze the impact of shareholders' engagement on firms' value. They show that, when a CSR resolution is adopted, firms will experience a positive stock price reaction if the CSR policy adopted is not too costly, and if the potential improvement in CSR and the strength of the consensus around the particular CSR issue at stake are high enough. This shows that, in some circumstances, there is a corporate social responsibility (CSR) premium associated with the fact that a company has a higher level of CSR.

Policies tilted towards CSR are more likely to be adopted when the number of SR funds and the potential CSR improvement are high enough, and when SRI funds' risk aversion and undiversifiable risk are low enough. This is because socially responsible investors hold a sizable fraction of firms' capital that enables them to influence firms' decisions through dialogue or vote at shareholders' meetings. However, when SRI funds do not hold a significant portion of firms' shares, CSR policies are not adopted. This raises the possibility of a large socially responsible raider's intervention. This raider can buy and hold non-responsible firms' shares in an attempt to build a majority in favor of the CSR policy. If he is not too risk averse, the raider succeeds in acquiring a controlling block. The CSR policy is then adopted. This can be associated with a positive abnormal return for the socially responsible raider if he is able to sell back part of the socially responsible firm and to pocket in the CSR premium. It is interesting to notice that a pure financial raider cannot successfully implement such a strategy and rip the premium. Indeed, such a raider would like to announce that he will vote in favor of the CSR policy in order to pocket in the CSR premium. But, since this announcement is not credible if he is a pure financial player, SRI funds are not ready to pay the premium when buying the firm's share. The purely financial raider thus does not display abnormal returns.

Overall, this analysis suggests that there are two ways SRI investors can display a positive abnormal performance. On the one hand, if positive financial results of CSR policies materialize in the long-run, SRI funds that are tilted towards responsible assets enjoy higher returns than classical investors. On the other hand, an SRI private equity fund can also generate positive abnormal returns in the short- run. This requires: i) investing in non-responsible firms, ii) acquiring enough shares to be able to influence corporate policies, iii) being sufficiently inclined towards social responsibility so that commitments to engage for CSR policies (that are costly in the short-run) are credible. One problem with the type of engagement strategy described here is that it requires investing in non-responsible companies before making them more responsible. This includes a reputational risk that some responsible investors, such as large pension funds, are not always ready to take. Nevertheless, this analysis suggests that doing well by doing good is not only reserved to firms but is also amenable to SRI funds.

A study performed by Lanoie, Laurent-Lucchetti, Johnstone and Ambec (2010) offers results that could prove useful to design engagement strategy. This paper does not look at shareholders' engagement per se (for which there is little data available at this point) but instead focuses on the impact of the stringency of environmental regulations. In a sense, regulations can be viewed as affecting firms' environmental policies just as engagement could. Results could thus be relevant to estimate the impact of a stringent request to improve environmental performance coming from shareholders. Lanoie et al. (2010) use survey data on 4200 production facilities from 7 OECD countries (Canada, France, Germany, Hungary, Japan, Norway, and the US). They show that a 1% increase in the probability to have a stringent environmental regulation increases by 0.04% the probability for a firm to make environmental R&D investments and 0.02% percent the probability for a firm to be profitable. Interestingly, this result suggests that engaging corporations regarding environmental R&D could be beneficial for SRI funds. However, Lanoie et al. (2010) indicate that the overall effect of stringent regulations on profitability is negative due to a large direct financial cost of compliance. The lessons for SRI funds is that the cost of engagement (for the funds themselves but also for the companies being engaged) should be i) taken into account before deciding whether an engagement campaign is desirable, and ii) monitored closely

once a campaign has started. The evidence offered by Lanoie et al. (2010) indeed shows that compliance costs can exceed the financial benefits derived from enhanced environmental performance.

3. Valuing socially responsible firms

Socially responsible investments heavily depend on financial as well as extra-financial analysis. The quantitative tools for financial analysis have been developed in the last 50 years or so. A growing literature is now focusing on creating the quantitative tools for extra-financial analysis. In particular, this literature enriches the cost-benefit approach by considering alternative preferences and new interactions between the various economic, social and environmental consequences of firms' and governments' policies. We discuss below to recent contributions that study the impact of ambiguity aversion and of correlated economic and environmental damages. These studies should ultimately prove useful to guide SRI analysts in their effort to merge financial and extra-financial information.

a) The value of life-threatening externalities

It is sometimes difficult to assess with precision the risks to health and life that we face. For instance, there is often conflicting information about the likelihood of dying from new environmental or technological risks. Recall the debates about the risks related to the mad cow disease or to the avian flu: Due to the scientific uncertainty over the channels of transmission of these diseases to human beings, it was difficult to predict the number of fatalities. Some experts predicted a few fatalities while other experts predicted several thousands of fatalities. A second example relates to climate change, which is likely to increase worldwide mortality due to heat stress, malnutrition and vector-borne diseases. Yet, the exact increase in global temperature is highly uncertain, and so are the predictions about the number of deaths induced by climate change. This issue is important as worldwide mortality costs may account for more than half of the aggregate monetary-equivalent global warming damages estimate (IPPC (1995)). How do people react to the uncertainty over the probability of dying from a specific risk? Answering this question is crucial to offer an objective valuation of the value of life-threatening externalities.

Treich (2010) shows that the existence of ambiguity over baseline mortality risks increases the value of a statistical life when the decision maker is averse to ambiguity. Existing estimations of the value of statistical life in developed countries range from $1 to $10 million. Treich (2010) supports the view that, when using these estimates to assess the future value of project with life-threatening externalities, an extra-financial analyst should favor the higher part of the interval. This result holds so long as the decision maker's marginal utility of wealth is larger when he is alive than when he is dead, a standard and reasonable assumption in mortality risk models. The intuition for the result is that the ambiguity aversion effect operates as the ''dead anyway'' effect. Namely, the effect of ambiguity aversion on the value of statistical life is similar to that of a perceived increase in the baseline mortality risk within the expected utility model.

b) The value of environmental externalities

What is the value today of a project that has positive financial and ecological consequences? This is a central question for extra-financial analysts and is relevant for a wide set of environmental contexts, such as global warming, nuclear wastes, and biodiversity. Its answer depends upon our expectations about the quality of the environment and about the level of economic development that future generations will face when the project returns (both financial and ecological) will materialize. For example, it is intuitive that the value of the project should be high if the extra-financial analyst believes that the environment will be much deteriorated in the future or/and if the economy will be ruined. The problem is made complex because of the considerable uncertainties that one faces with respect to both the ecological and the economic evolutions of our societies.

Gollier (2010) proposes to use two different discount rates when evaluating the financial and ecological consequences of a project. The financial discount rate is the tradionnal interest rate that is used in computing the net present value of a project. The ecological discount factor associated to date t is the immediate sure environmental impact that has the same impact on welfare as a unit environmental impact at date t. This method is simple because one does not need to compute certainty equivalent future values of environmental impacts. As an example, Gollier (2010) applies the model to the issue of biodiversity. Using data about the link between biodiversity and economic development, he indicates that projects' consequences on biodiversity should be discounted at a rate of 1.5%, whereas projects' financial returns should be discounted at 3.2%. Consider for example the case of an analyst whose objective is to assess the value today of a project that generates in 30 years a positive economic cash-flow worth $1,000 and a negative ecological cash-flow of $600. Because the ecological discount rate is much lower than the economic discount rate, the present value of the project is actually close to zero (from a social point of view)!

WORK GROUP 2: Firms' strategies, relationship with stakeholders and sustainable finance

The green or sustainable economy receives a considerable attention nowadays despite a rather blurred outline. The reality itself is twofold: regulation, imposing environmental constraints on growth; and new markets, with the creation of new opportunities of profits and investment. The term 'green growth' clearly suggests that the constraint transforms itself into an opportunity. Yet, at the macro-economic level, the search for international cooperation on climate policies proves a complex and hard task.
Sustainable finance and responsible investment clearly have a key role to play in these evolutions. Yet, SRI funds still represent less than 10% of the assets under management in major OECD countries. In France however, this small proportion hides a much larger trend: the progressive and massive integration of SRI criteria into the mainstream. At the end of 2009, this new phenomenon, known as SRI Mainstreaming, concerned 90% of conventional funds in terms of assets, compared to 61% at the end of 2008 and 3% at the end of 2007 (Novethic, 2010).

Over the past three years, the acceleration of the SRI Mainstreaming phenomenon has been considerable; and today, the tenants of SRI face a new challenge: to demonstrate the differences between SRI and conventional funds, while maintaining good financial performance. This task is all the more difficult since SRI performance has not yet been defined.

These debates raise some important issues at the core of the work group's research program on CSR:

- How do firms and investors benefit from socially responsible (CSR) strategies?
- How to measure SRI performance? What is extra-financial performance ? What are the relevant ESG indicators ?
- What is the value of information on CSR strategies, especially from an investor's perspective?
- How do firms actually minimize risks at the sectoral level?

The main achievements of the research work group may be summarized by focusing on three main dimensions:

- The first dimension examines the links between CSR and extra-financial performance.

The research programs analyze how extra-financial information and CSR strategies are evaluated by firms and investors, in particular in terms of intangible assets such as governance quality (boards and compensations) and human capital.
Moreover, risk-sharing and assets bubbles are also examined as they play a key role in the efficiency and stability on financial markets, and thereby in their degree of sustainability.
Finally, the evolution of SRI market and its institutional logics are investigated in relationship with the recent SRI Mainstreaming phenomenon and the development of SRI labels.

- The second dimension accounts for the specificity of sectoral risks, in the agro-food sector in particular, as well as the management of global risks, especially associated with climate change, GMO or biodiversity.

The works examine the impact of norms on vertical relations of the food industry and on the evolution of consumers' demand for labeled goods. In particular, experimental economics methods are developed to evaluate the willingness to pay for goods possessing labels on safety. Moreover, the difficulty of having raw materials based on GMO and non-GMO sources are investigated, and.

Finally, the management of climate change risks is analyzed by focusing on the links between environmental constraints and financial performance, given the interplay of both the sectoral and the firm-level strategic determinants.

- The third dimension focuses on strategies targeted towards emerging markets and poverty (Bottom of the pyramid – BoP).

Can firms and investors develop profitable businesses and investments by targeting emerging markets and poverty (the BOP segments)? This research program analyzes firms' strategies and their determinants in addressing the BOP, in particular by examing the role of learning and innovation central to cross-sector alliances between firms and social actors (NGOs, social entrepreneurs) when developing BOP strategies. A special focus on housing is also considered.

A book edited by Patricia Crifo and Jean-Pierre Ponssard has also been published. It collects sixteen contributions of the research team and provides a comprehensive overview of the achievements.

As explained in the annual report 2010, the research perspectives of the work group 2 have been established in relationship with the chair's priorities and objectives highlighted in the February 2010 document, and include seven major themes.

1. <u>CSR and extra-financial performance : defining and measuring extra-financial performance</u>

Several directions of research to analyze the links between CSR and extra-financial performance have been initiated and will be developed in future research.

A first project questions *Under which conditions a responsible firm enjoys superior performance (Crifo and Cavaco, Forget)*.
The Porter hypothesis according to which socially responsible firms would have a comparative and competitive advantage has received a considerable attention in the literature but no consensus has been reached in the empirical literature. One way to enrich this debate is to analyze the trade-offs firms would be facing in their CSR decisions. CSR is in fact a multi-dimensional investment and all ESG dimensions (environment, social, governance) do not affect performance similarly. It is therefore important to evaluate which

dimensions appear as concomitant or alternative (i.e. complements or substitutes) inputs of firms' performance for investors.
This project has led to several publications and working papers, in particular within a PhD in progress.

A second project is dedicated to the *Definition and measurement of intangible assets (Challe, Cavaco, Crifo and Reberioux)* . Undeniably at the root of actual and future growth, intangible assets yet raise important evaluation problems in the short term – they mainly appear as expenses whereas they are essential to the preservation of firms' competitive advantage in the long run. In particular, human capital strategies play a crucial role in the evaluation of extra-financial performance. It is therefore important to identify and quantify such strategies in the measurement of extra-financial performance.

This project is currently in its starting phase. Its objective is to evaluate empirically extra-financial performance by focusing on firms' intangible assets (Research and Development, work relations, governance, etc.) as inputs of economic performance. The database is currently under construction.

A third project focuses on *The extra-financial performance of SMEs* (small and medium size enterprises) *(Forget).* SMEs represent most of the manufacturing industry (more than 95%) and have a different approaches of CSR, in particular compared to big capitalizations. The research on SME's CSR strategies is however very limited, not to say inexistent, mainly because of lack of available data. Should shareholders promote CSR strategies and how should CSR be measured in such types of firms? It would be important to propose an analysis of extra-financial indicators for SMEs useful for institutional investors and private equity funds. This project is part of a PhD thesis in progress.

2. <u>The demand for socially responsible investment and its relations with societal stakes</u>

The demand for socially responsible investments is investigated by focusing on three main directions of research.
The first one analyzes *The role of labels for the efficiency of the SRI retail market in France (Hobeika).* One striking feature of the French SRI market is that parallel to its very dynamic evolution over the past decade, the share of individual investors (retail market) has been declining to less than one third of the overall SRI market in 2009. Given the complexity of SRI supply and the difficulty for individuals to access information, labels might represent an interesting solution.
The objective of this project is to assess how SRI labels that have developed in France during the 2000s can contribute to reduce complexity and thereby improve efficiency on SRI markets. This work is in progress, and has led to an article within a PhD thesis in progress.

The second direction of research builds upon the global challenges of sustainability that the demand for SRI might address, in particular with respect to climate change and green growth strategies. International negotiations on climate are analyzed taking into account their recent developments, as well as their underlying strategic stakes. The consequences of climate policies is analyzed by focusing on *The firms' strategies for CO2 mitigation and climate change policies (Ponssard and Arjalies)*. Environmental regulation is in fact likely to

affect firms' profitability depending on how deeply the firm changes its strategy and depending also on sectoral stakes. The opposition between risk management/conformity and strategic vision/opportunity are investigated within two different sectors, chemistry and building materials. At a more theoretical level, a properly designed sectoral approach is also shown to be the answer to two sets of constraints that hinder international agreement on climate change: a genuine concern for economic growth from developing countries and competitiveness issues from industrialized countries.
This research has led to one collective book and two articles (working papers).

Finally, the 2007-2010 financial crisis has rejuvenated the interest in systemic risk in the financial system, its dramatic spill over to the real economy and whether and how it should be adressed by public policies. This research examines *Asset bubbles and equilibrium risk shifting (Challe)*, by focusing in particular on the risk taking behaviour of financial interemediaries that have limited liabilities and may deliberately choose a level of risk in excess of the social optimum. In turn, the analysis highlights the role of rents in the financial sector for the formation of asset bubbles on the one hand, and explains the behavior of imprudent banks in an opaque financial system on the other hand.
This research has led to two working papers.

3. How does SRI management lead firms to reduce negative externalities? What is the value of extra financial information to investors? Are SRI criteria diffusing to conventional asset management?

An important issue that is raised here refers to the impact of SRI on firms and markets. In particular, do socially responsible investors have an impact on financial markets in general and socially responsible firms ? Another issue relates to the mainstreaming of SRI criteria.
From this perspective two main directions are proposed.

The first project examines *Why Investors would value information on firms' social performance (Prady).* Responsible investors build their portfolios according to environmental, social and governance criteria that do not usually enter the valuation of a firm. To this end, they collect information about the social performance of the firm they intend to invest in. Mainstream investors are indifferent to the firms' social record. This research examines the conditions under which mainstream investors are willing to purchase information about the firms' social performance. Responsible investment can create a speculative opportunity on the capital market because firms are valued below (over) their book value when they have a poor (good) social record.
This project has been led to 2 articles within a PhD thesis (defended in late 2010).

The second project focuses on the impact of SRI on the asset management sector and the issue of *SRI 'mainstreaming' (Arjalies, Crifo, Mottis)*, that is the integration of SRI criteria by the asset management sector. For Robeco, one of the most important asset manager worldwide, 20% of assets under management in the world will incorporate SRI criteria within the next decade. With this in mind, it is important to examine the value of SRI information for classical investors and the mechanisms of diffusion of SRI criteria on assets management

practices. The diffusion of ESG criteria to various asset classes, for instance, government loans and obligations, can be analyzed in this context.
This project has led to three articles within a PhD thesis (defended in mid 2010) and two other articles.

4. What ESG indicators are relevant? Sectoral approaches (eg : agri-food sector)

Analyzing the relevant ESG indicators implies to take into account their sectoral dimension. From this perspective two main directions are proposed.
The first direction focuses on the agri-food sector and analyzes *The role and impact of norms and the evolution of consumers' demand for labelled goods in the food sector (Giraud-Heraud).* The objective is to understand why firms promote collective standards, in particular on goods safety; and how firms' responsibility with respect to health and nutrition corresponds to a need for sectoral cooperation. The consumers' willingness to pay for labelled goods is also investigated, using experimental economics methods.
This research has led to several publications and working papers.

The second direction explores *The impact and efficiency of different regulatory frameworks for GMOs (Poret).* In particular, economic theory can be useful to enlighten which arguments favour and which ones oppose labelling and coexistence regulations for GMOs and non-GMOs, which type of regulation should be favoured, and how different regulations affect various interest groups.
This project has led to two working papers.

5. Relations investors-firms, commitment, governance

The relations between investors and firms, in particular the commitment and impact of shareholders and investors on management are essential to SRI issues. From this perspective, governance is a key issue. From this perspective, two main research directions are privileged.
The first research project focuses on *The links between boards of directors and firm performance (Challe, Cavaco, Crifo and Reberioux)* . The recurrence of governance crises (financial scandals in 2001-2002, crisis in 2007-2008) has emphasized the role of boards of directors, and the importance of shareholders' engagements in the promotion of long run and good governance practices. This project aims at analyzing empirically with a unique and original database the role of boards' structure and quality in raising firm performance. The database is currently under construction, some preliminary results are expected by mid-2011.

The second direction of research analyzes *CEO compensation (Galichon)* and the debate on whether such compensations would be excessive in OECD countries.
This project has led to two articles.

6. BOP environment, emerging countries, growth activities in the long run.

For Hart & Prahalad (2002), by selling their goods to poor households in developing countries – that is « Bottom of the Pyramid » (BOP) markets – multinational firms should make revenues while alleviating poverty. The BOP concept has become very popular both in

academia and the corporate world, but still suffers from theoretical foundations and empirical validity. This research aims at addressing these limitations in particular by explaining the diversity of firms' projects with the BOP, highlighting the capacities necessary to succeed together with the learning and innovation challenges posed by such strategies.
This project has led to three articles within a PhD thesis to be defended by mid 2011.

7. The governance of institutional investors and responsible investment

The green economy receives a considerable attention nowadays despite a rather blurred outline. The reality itself is twofold: regulation, imposing environmental constraints on growth; and new markets, with the creation of new opportunities of profits and investment.
The term 'green growth' suggests a clear answer: the constraint transforms itself into an opportunity. In the long run, the objective of a sustainable economy is desirable to preserve the environment and justified economically with a higher growth compared to a laissez-faire scenario. Institutional investors will undeniably have a key role to play in this transition process. This project thus aims at examining *The role of institutional investors for sustainable growth (Hobeika)* with a focus on their governance structure in the financing of green growth strategies.
This project is at its starting phase, it will part of a PhD thesis.