

Can companies finance long-term environmental transitions?

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Abstract :

Industrial, service or financial companies are keen to raise funds to invest in the transformation of society in order to preserve the climate and biodiversity. There is a pressing need and therefore enormous opportunities. On the other hand, these types of investments are generally not economically viable due to their often unattractive risk/reward ratio. Public policies that provide some incentives – and even ones that create obligations for certain stakeholders to act – would be vital for unblocking financing for these investments, which could then become massive. The key ecological transformation projects, which should amount to more than 100 billion euros per year, are thus dependent on public decision-making and on sufficiently mature public opinion concerning environmental issues.

At the end of this issue, the question remains open as to whether and how companies can finance long-term environmental transitions.

The answer is, of course, yes. Just as companies financed sewage treatment plants, factory flue gas treatment, waste treatment facilities and other environmental infrastructure in the 20th century, they can now finance the electrification of mobility, carbon-free energy, energy-efficient building renovation and the construction of green infrastructure. They have not done so on a large scale in any of these sectors so far, however, and this raises the question of the pace of these investments: can they be fast enough to meet the challenges of climate and biodiversity?

The solution lies at the very heart of companies, it is in fact a technical one: the trade-off between profitability and risk is currently less attractive for many of these investments than for others that are known and proven, even if they are polluting. Today, it is still more profitable to build coal or gas-fired power plants than an RNG plan, to buy thermal rather than electric vehicles, and to transform agricultural land into a building site rather than converting it to organic farming.

One way to deal with the issue of shifting industrial investments is to look at how the risk and profitability of these investments will or could evolve.

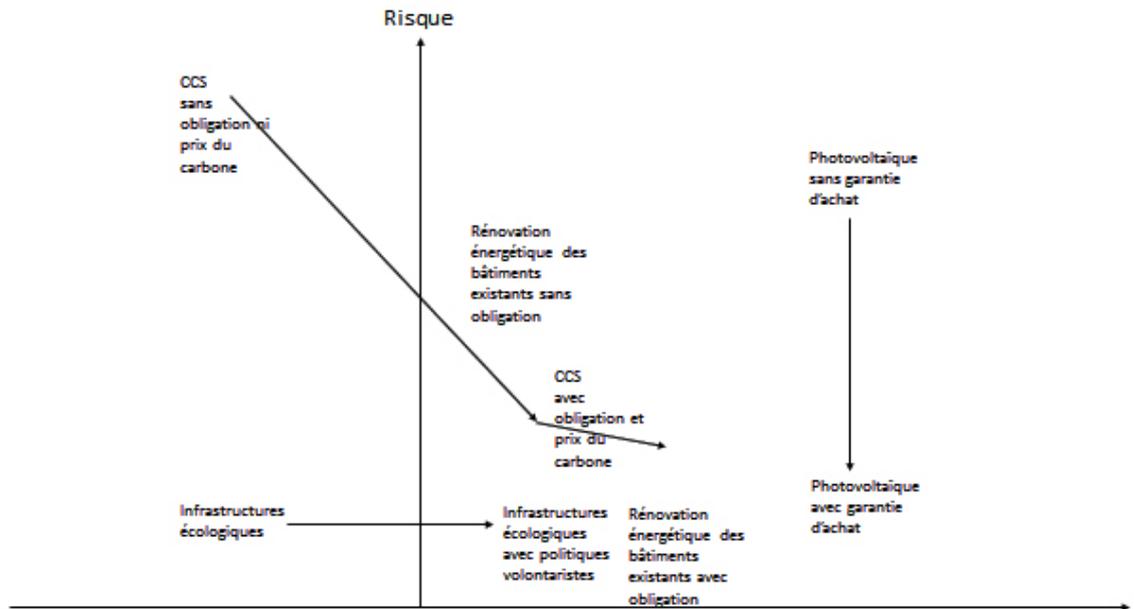


Figure 1: Réduction du risque des investissements environnementaux

Légende :

Risque	Risk
Rentabilité	Reward
CCS sans obligation ni prix du carbone	CCS with no obligation and no carbon price
Rénovation énergétique des bâtiments existants sans obligation	Energy retrofitting of existing buildings without obligation
CCS avec obligation et prix du carbone	CCS with obligation and carbon price
Photovoltaïque sans garantie d'achat	Solar installations without purchase agreement
Photovoltaïque avec garantie d'achat	Solar installations with purchase agreement
Infrastructures écologiques	Ecological infrastructure
Infrastructures écologiques avec politiques volontaristes	Ecological infrastructure with proactive policies
Rénovation énergétique des bâtiments existants avec obligation	Energy retrofitting of existing buildings with obligation
Figure 1: Réduction du risque des investissements environnementaux	Figure 1: Reducing the risk of environmental investments

The above diagram allows us to compare different investments needed to restore the environment, by querying how they can be scaled up and made more attractive than carbon investments in the same sector. In almost all cases, this requires a new business model, one in which the public authorities must integrate environmental considerations, either through legislation or a new form of governance. The question of private investment is therefore a question of establishing viable business models for managing environmental activities. By definition, there are no spontaneous consumers, it is far more often a question of managing a common space or a common good. How can public authorities create attractive business models that are likely to generate significant investments?

In this article, we distinguish three scenarios for environmental investments, depending on whether the pollution is attributable or not, or whether the aim is to prevent it.

Attributable pollution: why the "polluter pays" principle is important

This is the easiest scenario. If there is an established link between an activity and pollution, the polluter-pays principle makes it possible to create effective business models through either pollution reduction obligations or financial mechanisms allowing the community to manage the issue. This model has worked for the treatment of industrial effluents, including carbon dioxide. The European ETS is based on this mechanism, leading to the use of renewable energies or the substitution of certain materials or processes by others. Its effectiveness depends on several factors: perceived volatility, the long-term prospects for reducing the quotas placed on the market, as well as the uncertainties weighing on the scope and conditions at the borders of the EU. The history of ETS prices shows that these factors are not always present.

However, the example of the carbon tax shows that, even in the absence of price volatility in a market, introducing an appropriate business model can be complex because of the uncertainty weighing on the public policies that condition or create it. This uncertainty has two sources:

- The public's acknowledgement of the problem: it took several decades for carbon dioxide emissions to be perceived by the majority of the population as a pollution that is subject to public policy, the polluter-pays principle and a carbon tax. Today, land use is only just beginning to be perceived as detrimental to nature: designing a mechanism that stops or slows land artificialisation in favour of investments in urban renewal or rehabilitation requires a clearer awareness of the environmental damage. As long as this awareness is not present, the policy is reversible; the case of the ecotax that was stalled in the wake of violent protests in France in 2013 is an example of an unsuccessful investment by a company due to vacillating public policy.
- The potentially regressive effect of public policies to reduce harmful effects, often based on taxes or charges linked to the use of a product and its harmful effects. Here again, the carbon tax is a good example, with its regressive effect that slows down its increase as long as it is perceived as unfair.

Once application of the polluter-pays principle is included in the solution, the business model becomes reliable and companies make the necessary investments. This model has been used to manage many types of industrial pollution– this is the case with wastewater treatment plants, where the cost borne by individuals is proportional to their consumption. On the other hand, this is not the case for household waste. Why not? The reason is that costs are more difficult to allocate, and the business model to trigger investments in such a case is different.

Investing to avoid non-attributable pollution?

Such pollution is very common. Groundwater pollution, littering and even various types of chemical pollutions are good examples: it is impossible to say precisely which stakeholder is to blame, particularly when a number of factors are in play. Since polluted environments are in the public domain (the atmosphere, bodies of water), no one can be held responsible or claim that a specific stakeholder is liable besides the public authorities.

In these cases, the only party able to pay for clean-up or avoidance is the community, regardless of the level. The role of the public authorities is to organise the avoidance and substitution of the pollution in question or clean-up. This doesn't mean, however, that they are always responsible for the investment: thanks to the legal tool of concessions, or of public-private partnerships, the community can mobilise investments and private financing from companies, at least partially. The profitability of the investment is ensured by private or public revenues linked either to the means

implemented or to the results obtained: investments in waste sorting and recycling facilities may fall under this model. Remuneration is based on the tonnages processed, and is negotiated with respect to the private revenue that the operator can derive from the operations (sales of secondary raw materials or energy). In these cases, the taxpayer, rather than the polluter, bears the clean-up costs.

In the same way that public authorities can organise solutions, they can also invest in research and development of alternative solutions.

Prevention and substitution

When it comes to climate and biodiversity, once the constraints and limitations of the polluter-pays principle have been integrated, needed investments remain considerable, and the following examples identify ways to reduce the risk responsible for the modest level of investment.

- Thermal renovation of existing buildings: what makes owners reticent to invest is low profitability, despite the existence of public subsidies, which are often too complex and poorly-understood. On the other hand, the risk is quite high, because the investment will not be profitable, for example if gas prices remain where they are or fall even further, or if behaviour leads to rebound effects, cancelling out hoped-for lower energy bills. Above all, public subsidies are perceived as unstable as well as complex: they are dependent on their cost to the public budget, and the conditions for granting them vary from one year to the next, making the decision to invest difficult. Under these conditions, the best way to amplify this market would be to make such investments compulsory for property-owners at certain periods in the life of the building¹, by allocating appropriate subsidies to those owners who are less well-off. This would create a competitive market propitious to effective solutions, and would encourage professionals to invest in training staff specialised in the chosen solution.
- Electric vehicles: investment financing involves several stakeholders: end users, fleets and manufacturers. European regulations provide stimuli for carmakers, but this deployment comes with several prerequisites: the approval of the vehicle and the adoption of its use by motorists (which seems to be the case – few buyers return to the combustion engines after purchasing an electric vehicle) and a sufficient margin on sales: it is currently more profitable to sell SUVs than electric cars. The switchover should therefore come from buyers, under the effect, for example, of an almost certain prospect of rising fuel prices. Displaying a carbon tax trajectory would be a step in the right direction, but, is it possible to do so in a credible manner?
- Hydrogen: if we can produce hydrogen from gas through CO₂ capture, the profitability outlook is good. This could be the benchmark solution: if the anticipated price of carbon makes this technology profitable, industrialists will be willing to make the appropriate investments. However, the risk is high, as profitability depends on the evolution of the price of ETS allowances and the price of competing fuels.
- Carbon capture and storage: here again, the issue is the price of carbon, and measures to avoid crowding out European industry if it is the only one to be forced to capture CO₂. An obligation to equip all new hydrogen production facilities with a CCS process as from a certain date could be a significant step forward.

¹ See the ZEN 2050 Recommendations, www.epe-asso.org.

- Ecological infrastructures: there is currently no business model for developing such infrastructures (apart from forestry), although this could be envisioned. The CAP could encourage farmers to replant hedges along rural paths or to structure their plots around such infrastructures, at least in areas of ecological continuity (the green and blue grid, ecological continuities), or to manage their farms according to *Haute Valeur Environnementale* criteria. Reconstructing an alternative business model with long-term viability is a challenge.

There are those for whom the issue has already been resolved: incentives for building renewable energy production facilities have now been stabilised. They consist of agreements that guarantee a purchase price for electricity for a sufficient number of years to ensure the profitability of the investment providing the technical risks are managed, i.e. if installation and maintenance costs are well planned for and if wind and sun forecasts are verified, which could shift with climate change – the latter risk being borne by the company.

Ability of companies to undertake voluntary actions and their scope

Voluntary action by companies is limited in scope, since we call "environment" that which is not part of a company's business model. Voluntary action corresponds to those measures companies implement that take this into account with less regard for their economic profitability.

According to France's new Civil Code, as amended by the 2019 Business Growth and Transformation Action Plan (PACTE)², a company's corporate purpose must now include environmental and societal considerations. Nevertheless, management is accountable to its shareholders, and must therefore present them with significant positive results obtained by applying a business model, unless there are duly explained exceptions.

This very strong business model approach is currently applicable in a very general way, with the possible exception of some very new mission-driven firms, where, it is true, the new model is still unproven. In any case, even a mission-driven company must ensure its sustainability, which implies at least financial equilibrium, or even earnings if it wants to attract capital.

In terms of the climate, it is relatively easy to set up business models, when we know that putting a price on carbon is enough to create them. The difficulties come from the acceptance of this economic framework and therefore from its social conception.

This is much more difficult when the issue is biodiversity, because it is not easy to define what we are trying to do, as a wide range of local indicators come into play. We know that we must limit pressure on biodiversity, but the investments to be made are far from certain. We are beginning to talk about ecological infrastructure, either green and blue grid or natural areas capable of filtering sewage or holding back flooding. What is the business model for this infrastructure, other than public funding? Investment consists of lowering the intensity of farming in a given area, changing activities to make them less dependent on artificial means, which is generally not profitable. For example, switching over to organic farming on the Evian and Vittel catchment fields can be financed because the water produced is valued at a sufficiently high price. This is not the case for water produced for drinking water networks, as this water is one hundred times less expensive – between €3 and €15/m³, whereas bottled water at €1 per liter costs €1,000/m³. This is how the inhabitants of the Vosges *département* are being barred from using well water, a situation that favours Vittel, and supplied with normal water that is cheaper to produce and transport.

² Act no. 2019-486 of 22 May 2019.

So what does it take for a local authority – whether a small municipality, a country or Europe – to decide to create business case that is likely to generate private investment? Above all, a robust sensitivity to environmental issues needs to be built. Investments to reduce emissions could not be financed until continuous heatwaves and climatic events became worrying for the majority of citizens. Is this enough to generate the investment needed to move to a low-carbon economy? It has taken over fifty years to complete the investment needed to clean up wastewater, how much longer will it take to move away from fossil fuels and fit large facilities with CCS devices?

In other cases, the damage cannot be attributed to a specific polluter, but to a more ill-defined group: this is the case with over-exploitation of natural resources, widespread pollution, the advance of invasive species, land artificialisation that fragments habitats, emissions from vehicles and individual boilers, etc. The role of the public authorities thus becomes indispensable. It may consist in devising various governance mechanisms to get around this problem:

- Bringing the issue back to the marketers: the United States has included fuel distributors – albeit few in number – in the allowance market, based on the assumption that every litre of gasoline sold will eventually be burned. By deciding not to ration consumers, it rationed the entire market, generating higher prices and internalising negative externalities. Businesses have an interest in investing to provide consumers with cheaper alternatives.
- Introducing taxes to achieve the same internalisation at the end-consumer level, with the same result if the taxes are high enough.

Incentives, obligations or bans, all three of which can be nuanced, lead to increasingly convincing business cases:

- Incentives: for the thermal renovation of housing, impetus is provided by incentive schemes, which are not sufficient to encourage builders to invest either in skills or equipment. The number of construction firms with RGE certification (an environmentally-friendly label) is now decreasing.
- Obligation: the obligation to fit cars with catalytic converters has led all manufacturers to invest and to modify their models to achieve this
- Bans: the growing prospect of a ban on the sale of internal combustion vehicles in 2040 is likely to step up investments by manufacturers who want to be ready for this deadline. This does not prevent companies from trying to avoid or slow such a move. A ban, depending on whether or not it is adopted, will lead to accelerating or delaying investments.

From these examples, some policy principles emerge for accelerating the triggering of environmental investments by companies:

- The visible, ongoing application of the polluter-pays principle, with a predictable and stable price signal, and the robust prerequisite that all companies and products are equally subject to it: this is a constraint that, since it concerns national companies and not imported products, meets with resistance
- Outside the scope of this principle, limiting the social impact on voters is vital to the acceptance by a public that is aware, and to ensure the solidarity of stakeholders in financing investments
- At the same time, reducing subsidies for polluting activities (fossil fuel subsidies, policies that encourage urban development in far-flung suburbs, etc.) should make it possible to free up a source of financing that allows companies to achieve economic equilibrium
- Lastly, financing from public budgets is also a way of reaching a solution. On the other hand, given budgetary constraints, such financing is limited and uncertain. The success of the reward/penalty scheme for cars and the energy transition tax credit have made these policies more costly than expected for public finances, which has led to them being cut back, and thereby handicapping business models based on these mechanisms.

The continuity and predictability of public policies is also one of the key factors in triggering business investment. In this sense, the non-regression principle in environmental matters could be a good means to reassure companies about the prospects of profitability of their investments.

For corporate investment to occur, environmental governance is needed: incentives, obligations or bans. Companies can invest upstream if they know that such governance is being prepared; voluntary action is a means of anticipating, preparing and negotiating governance. And as such, it justifies moderate investments. Total's pilot CCS project in Lacq and Renault's investments in electric cars are a way of anticipating and validating certain solutions that could then be made mandatory. Investments in renewable energies are used to explore and negotiate the share of each solution in the future energy mix. It is only when a business model is adopted by the public authorities and is perceived as irreversible by all players that investment scales up.

It should be noted that green finance is a voluntary approach just like any other – investors, bankers and financiers are companies, acting as such, and can invest to create new markets or seek efficient solutions that will give them a competitive edge. On the other hand, they can only be deployed on a large scale if the business models they finance are profitable or likely to be profitable. They cannot therefore be expected to finance massive investments in decarbonisation or biodiversity conservation. In this respect, even international self-regulatory initiatives by the industry remain marginal. The Task Force on Climate-Related Financial Disclosures is noteworthy, as it started discussing decarbonisation strategies before the G20 governments. After a few years of voluntary experience, once measurement and assessment methods have been standardised, they will be able to draft agreed-upon regulations that are applicable in their respective countries, in the hope that "carbon havens" will not draw investors in the fossil fuel economy!

In conclusion, companies can of course invest for the long term to improve investment. According to the ZEN 2050 study, massive investment in climate transformation will be required, rising from €30bn annually to more than €100bn by 2040–2045. However, this presupposes several conditions:

- The existence of a market
- The prospect of profitability, whether this comes from a price differential, lower costs or a new product or service that justifies the initial investment
- Support from the population, which is often difficult to obtain in a country like France, which distrusts the private sector

Businesses, citizens and public authorities: the combined support and involvement of these three groups are essential to trigger business investment.

Landscape of climate finance in 2016

in billion current euros
I4CE - Institute for Climate Economics (2017)

