

Sustainable and green finance : exploring new markets

S. Ben Hadj
J. De Mulder
M.-D. Zachary

Introduction

The growing attention to sustainable and green finance is linked to a number of recent developments at global level, such as the increasing concern over inequality, both between the developed and the developing countries and within the rich countries. In the context of the globalisation of the economy, society is also attaching more importance to respect for social values, so that trade in certain goods or services, such as weapons, is considered unethical, and the same applies to exploitation, inhuman working conditions and the use of child labour. Moreover, the financial crisis that erupted in 2008 raised a number of questions concerning the sustainability of the prevailing growth and profit model of financial institutions. Likewise, there is growing environmental awareness (e.g. concerning pollution of the soil and the oceans), which involves an intergenerational aspect (namely the “legacy” being left for subsequent generations).

One specific aspect concerning the environment is global warming. Many reports not only present the facts of global warming and its human origins but also examine its potential consequences. Although the estimates diverge, it seems that global warming will also have a substantial impact on the economic system, unless we succeed in limiting the rise in temperature to 2°C above pre-industrial levels. The widespread conviction that immediate action must be taken has led to a number of rounds of climate negotiations and agreements (for instance in Kyoto and Paris).

These societal choices and the global constraints confronting the economy are expressed in savers’ demand for

“ethical” financial products, and in the need to fund new corporate investment projects (such as green investment).

To illustrate sustainable and green investment and finance, this article focuses mainly on developments concerning the climate, and more particularly energy. Nevertheless, there are of course other sustainable initiatives, for example those pursuing social or ethical objectives or relating to organic farming.

The article comprises five sections. Section 1 explains why the need for sustainable and green finance is increasing and discusses the demand for that form of financing. Section 2 examines the supply of sustainable and green finance. Section 3 takes a closer look at the promising example of the booming market in green bonds. Section 4 summarises the situation in Belgium, and finally, section 5 sets out the main challenges and policy implications.

1. Demand for green finance

Against the backdrop of today’s climate related issues, demand for green finance is best illustrated by reference to green investment. Investment in green energy is a typical example of the changing demand for funding for the purpose of producing energy.

This type of investment is the logical corollary to the global climate negotiations. In the latest round of negotiations at the Paris Conference in 2015 (COP21), a general agreement was reached on a global objective (namely to limit the rise in temperature to less than 2°C above

pre-industrial levels). The worldwide objective was then translated into targets per country or per major economic region. The EU undertook to achieve some objectives, which were then divided among the various Member States. In Belgium's case, the national target then needs an additional breakdown among the three Regions.

In the specific case of Belgium, but also for some other countries such as Germany, the switch to a form of energy production with lower CO₂ emissions is more challenging because of the decision in principle to phase out nuclear power. If energy can no longer be generated by nuclear power plants, a larger proportion of the production must come from alternative (renewable) sources, necessitating additional changes in the energy production mix.

Massive investment is needed throughout the world in various spheres, including of course in green energy capacity, but also in energy efficiency or in public transport, etc.

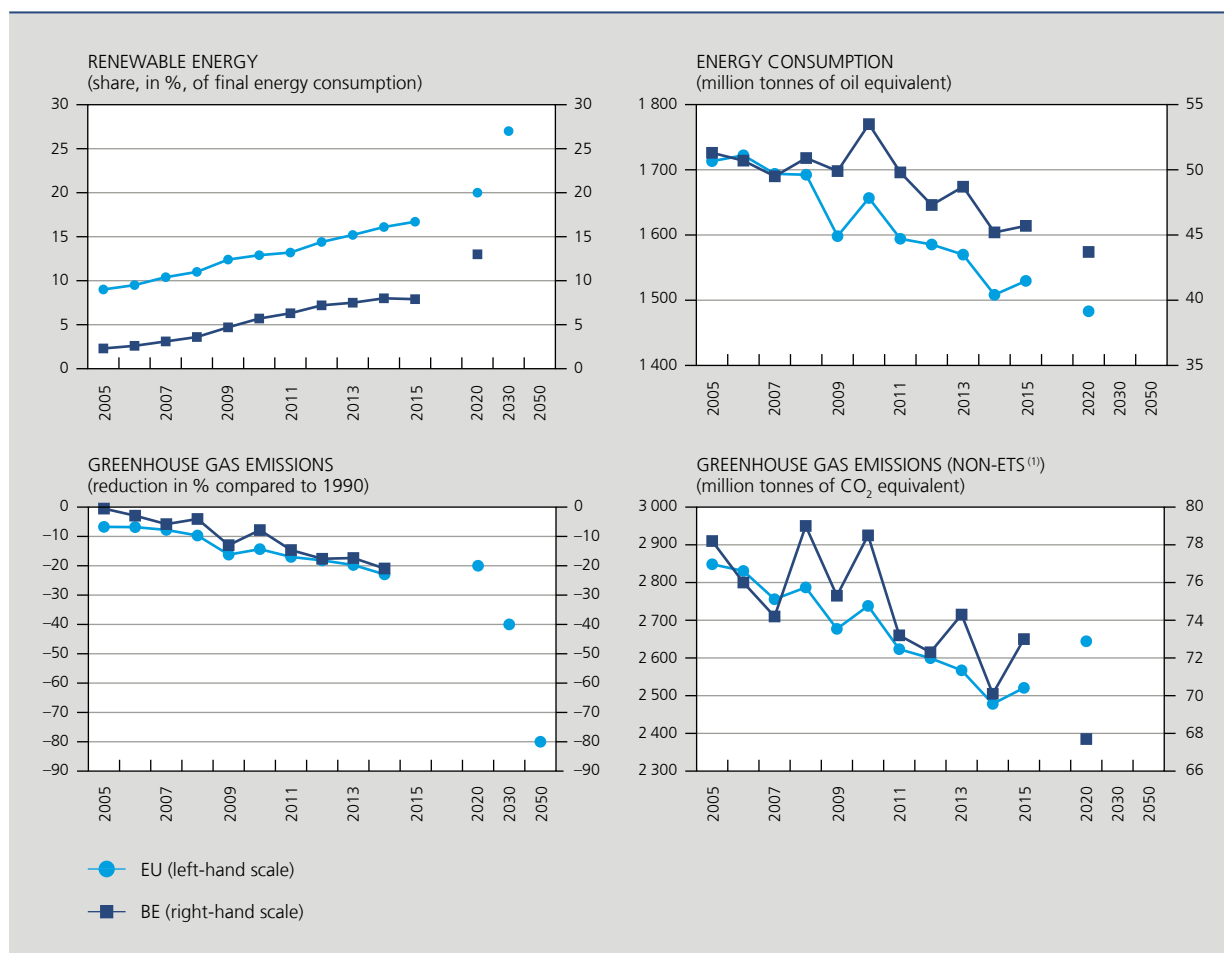
However, it should be stressed that this essential investment will not only entail huge costs. Apart from the favourable impact on the climate and the avoidance of the harmful effects of an excessive rise in temperatures, it will stimulate economic activity in the short term and in so doing will help to rescue European and other countries from the low-growth trap.

1.1 Climate targets

The EU's climate objectives concern three areas, namely renewable energy, energy efficiency, and greenhouse gas emissions. They target three reference years, namely 2020, 2030 and 2050.

The objectives for 2020 were set in 2007; in 2009, they were incorporated into legally-binding texts. Thus, in 2020, 20% of the EU's energy will have to come

CHART 1 CLIMATE TARGETS OF THE EU AND BELGIUM



Source: EC.

(1) "Non-ETS" refers to the emissions of branches not taking part in the EU Emissions Trading System.

from renewable sources. The aim is also to improve energy efficiency by 20 % relative to a reference scenario. Achieving that entails keeping primary energy consumption to a maximum of 1 483 Mtoe⁽¹⁾ in 2020. Finally, greenhouse gas emissions in 2020 are targeted to be 20 % lower than their 1990 level. To reach this target, a distinction was made between ETS and non-ETS branches. ETS stands for “EU Emissions Trading System” and concerns large firms operating in the energy and industry sectors and in intra-European aviation. For these branches which together account for around 45 % of greenhouse gas emissions in the EU, a system was set up whereby emission rights are allocated and can be traded between them. The aim is to reduce the emissions of those branches by 21 % over the period 2005-2020. For non-ETS branches such as households, agriculture and transport (excluding aviation), the target reduction over the same period is 10 %.

The objectives set at EU level for renewable energy, energy efficiency and emissions of non-ETS branches have been translated into binding national targets. For Belgium, the targets – for 2020 in each case – correspond to a 13 % share for renewable energy, maximum energy consumption of 43.7 Mtoe and a 15 % reduction in greenhouse gas emissions.

In 2014, new targets were agreed at EU level for 2030. The share of renewable energy is to go up to at least 27 % by then, energy efficiency has to be at least 27 % higher, and greenhouse gas emissions should be reduced by at least 40 % compared to 1990. That last target corresponds to reductions of 43 % and 30 % respectively for the ETS and non-ETS branches. The targets (except for the reduction for ETS branches) are to be allocated among the Member States.

In the even longer term, by 2050, the EU is aiming to cut emissions by 80-95 %.

The available data indicate that things are moving in the right direction, both in the EU as a whole and in Belgium. As regards greenhouse gas emissions, the EU has already achieved its target for 2020⁽²⁾, but that is certainly not true of Belgium. As regards the share of renewable energy and energy efficiency, there is still a long way to go to reach the 2020 targets in both the EU and Belgium; generally speaking, that is all the more true, of course, for the longer-term targets.

(1) Mtoe stands for million tonnes of oil equivalent.

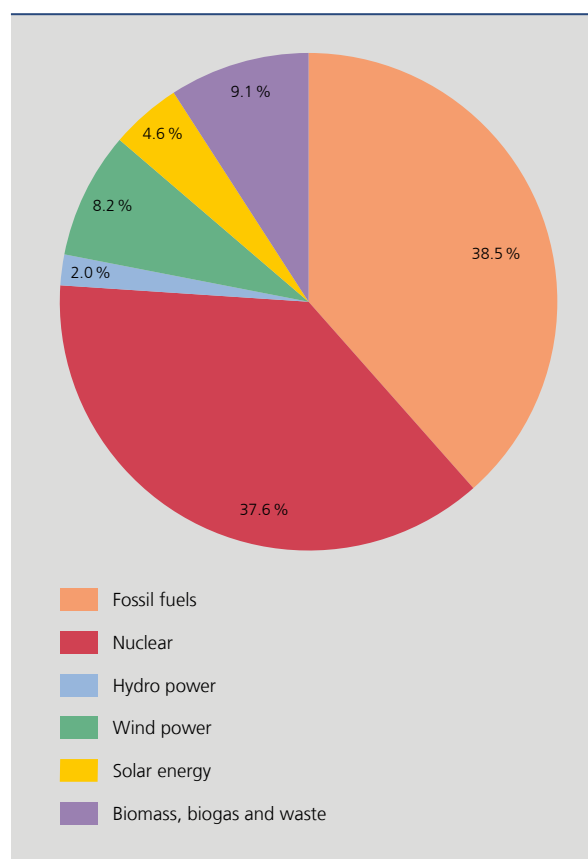
(2) It is of course still possible that the target may not be met, e.g. if the economic growth up to 2020 generates higher emissions.

1.2 Modification of the energy production mix

The federal government’s commitment to phasing out nuclear energy is an additional challenge for Belgium. The available numbers show that nuclear energy accounted for around 38 % of total electricity production in Belgium in 2015. That proportion was rather low since, as in the previous year, part of the nuclear generating capacity was out of service. For reference, the figure for 2013 was 51 %. Nuclear power stations do not emit any CO₂ during the electricity generation process, so that it would be better not to replace them with fossil fuels if the climate goals are to be met. In 2015, fossil fuels represented roughly 38 % of electricity production, with gas accounting for the major share (over 30 %).

However, replacing nuclear energy with renewable energy sources such as wind and solar power raises another problem. Both renewable sources depend on climatic conditions and therefore do not supply stable quantities of energy (they are intermittent sources). It will therefore

CHART 2 ELECTRICITY PRODUCTION MIX IN BELGIUM IN 2015
(in % of the total)



Source: FEBEG.

undoubtedly be necessary to invest in gas power stations which can be deployed flexibly in order to ensure continuity of supplies at all times in the future. However, that inevitably implies CO₂ emissions, which will make it difficult to achieve the emission targets.

Another solution is of course to import (even) more electricity. Since 2000, Belgium has almost always been a net importer of electricity. On average, net imports account for around 9% of consumption. In 2014 and 2015, that proportion was significantly higher – namely 20-24% – because the nuclear power stations were partly out of service, but in 2016 the figure dropped back to around 7%. If insufficient production capacity is created in Belgium to meet the future demand for electricity, then more electricity has to be imported. Of course, that requires sufficient interconnections. Work is currently in progress on that by the installation of new links with Germany and the United Kingdom.

Increased imports could help enable a country to fulfil its international obligations regarding greenhouse gas emissions, since those emissions will take place elsewhere. However, if the imported electricity is produced from fossil fuels, then that merely implies a transfer which does nothing towards achieving the ultimate goal, namely a reduction in total emissions worldwide. In principle, electricity generation based on fossil fuels should be curbed by the ETS mechanism, since the cost of the emission rights is passed on in the selling price. In practice, however, the import price does not incorporate the whole of the environmental cost since the current carbon price reflects only part of the externalities resulting from pollution (see below).

Increased structural dependence on imports also implies a number of risks. If the total supply at some point is insufficient to meet demand⁽¹⁾, the purchase price could go up sharply in the event of scarcity on the European market. And even if other (neighbouring) countries have sufficient supplies, systematically higher use of the available import capacity could mean that in times of crisis additional imports may not be possible, potentially leading to black-outs. In general, the country becomes subject to the closure of production units in neighbouring countries and dependent on the availability of networks abroad, which could be detrimental to Belgium's supplies.

1.3 Green investment

It is clear from the foregoing that massive green investment will be necessary in the future. Of course, it is hard to put a figure on the financial resources that will be needed, because a lot of assumptions have to be made concerning a multitude of uncertain factors over a long

time horizon. However, a number of recent publications by international institutions indicate that the amounts involved are enormous.

For instance, on its website, the EC states that "Average annual additional investments are projected to amount to € 38 billion for the EU as a whole over the period 2011-2030". The IMF states that "The 2030 Agenda is a trillion-dollar one [...]" (IMF, 2016). The International Energy Agency estimates that "Around USD 3.5 trillion in energy sector investments would be required on average each year between 2016 and 2050, compared to USD 1.8 trillion in 2015", and according to IRENA, "[...] cumulative additional investment would still need to amount to USD 29 trillion over the period to 2050 [...] in addition to the investment of USD 116 trillion already envisaged [...]" (IEA and IRENA, 2017).

2. The supply of sustainable and green finance

2.1 Concept

Before presenting a detailed analysis of the available supply of sustainable and green finance, we need to clarify exactly what this concept covers. Sustainable and green finance is intended to reconcile economic performance with a social and environmental impact by choosing to invest in companies or public entities that contribute to sustainable development, regardless of the sector in which they operate. By influencing governance and the behaviour of players, this type of finance ought to encourage the development of a responsible and sustainable economy.

Despite the consensus on these general principles, there is currently no unanimously accepted definition and there are no checks – at Belgian, European or global level – which can establish whether the financial products claiming to be sustainable and green actually fit that description.

In reality, there are varying approaches to sustainable and green finance mainly because of differences in local or national cultures, each with its own particular concerns. For example, the social aspect carries greater weight in France, while Switzerland and Germany attach more importance to the environment. In the United Kingdom, governance is considered crucial, whereas in the Scandinavian countries and the United States, ethical values predominate.

(1) For example, in the event of unexpected production disruptions or at peak consumption times.

Nevertheless, there are various recognised approaches to sustainable and green investment. They are identified and classified by the Global Sustainable Investment Alliance (GSIA⁽¹⁾, 2016). In Belgium, they are also recognised by Febelfin. Promoters and investors interested in sustainable and green finance can adopt the following principles:

- exclusion principle: products are selected by excluding certain sectors, companies or countries⁽²⁾ on the basis of ethical criteria on account of their activity (tobacco, alcohol, arms, gambling, etc.) or the adoption of certain specific practices (forced labour, corruption, animal testing, etc.);
- ESG integration: according to this approach, investors take systematic and explicit account of ESG criteria in their financial analysis: E stands for Environmental, S for Social and G for Governance.
- “best in class” approach: “best in class” funds select the countries or companies that perform best in terms of sustainability, i.e. according to environmental, social and governance (ESG) criteria;
- selection on the basis of international standards (normative control): only countries and companies that respect a series of international standards and treaties⁽³⁾ are funded with money originating from sustainable products;
- thematic approach: funds in this category prefer to invest in countries and companies in a particular sector or in those that encourage certain practices (renewable energy, water supply, reduction of greenhouse gas emissions, employment, working conditions, etc.). In principle, the other aspects of sustainability such as respect for the environment, social conscience and good governance are also borne in mind. For example, account must also be taken of the social practices and governance of companies active in the renewable energy sector;
- visible social impact: this approach concerns the financing of businesses endeavouring to resolve specific environmental or social problems;
- shareholder commitment: the shareholders actively try to exert beneficial influence over the attitude of the companies that they invest in via direct dialogue with the management and/or by exercising their right to vote at the general assembly, e.g. by trying to draw attention to respect for the environment, social conscience or good governance.

Compared to “traditional” investment, sustainable and green investment (demand) have a number of adverse features that tend to make them difficult to finance (supply). Those features concern the return and the risk, on the one hand, and the associated transaction and information costs on the other (SEO Economisch Onderzoek, 2009).

Sustainable projects’ returns and risks are influenced by the fact that they are often innovative and complex, involving advanced technology and R&D. In many cases, they are capital-intensive projects with a long investment horizon, so that the associated returns risks are more difficult to assess.

In the case of green financing, there is the additional problem that the externalities associated with energy production, such as greenhouse gas emissions, are not adequately reflected in the market price. Green technologies that reduce CO₂ emissions therefore offer no price advantage over conventional sources.

Another relevant point is the government’s importance in the energy sector. As it is often a question of large-scale projects, the government plays a key role in granting the necessary permits. It is also the government that decides on the award of subsidies, the levying of charges or taxes, etc. Moreover, green energy investment often involves long-term projects, so that there is always the risk that a new government may change the “rules of the game” (“regulatory risk”).

Regarding the transaction and information costs, it should be noted that sustainable project developers are often new players, so that potential investors cannot derive any information from their investment history. Moreover, those new players seldom have sufficient own funds, reducing the scope for offering collateral.

In addition, potential lenders generally know little about the new projects and procedures, making it difficult to value the projects.

Furthermore, sustainable investment projects are definitely not homogenous products. They may relate to known technologies or the development of entirely new ones. They may also range in size from quite small to very large projects. For example, known technologies may concern small systems for individuals, such as solar panels, but may also concern large systems such as wind parks (offshore). As for new technologies, they may be developed by small start-ups or by very large-scale projects such as ITER⁽⁴⁾.

(1) Federation of organisations promoting sustainable investment, responsible for increasing the impact and visibility of those organisations at global level. For Europe, the member is Eurosif (European Sustainable Investment Forum), itself a federation of eight national forums, including Belsif for Belgium.

(2) Where a country is concerned, the reference is to the securities issued by the country in question.

(3) Examples include the UN Framework Convention on Climate Change, the European Convention on Human Rights, the European Convention on the Rights of the Child, the Forced Labour Convention, the Convention on Cluster Munitions, etc.

(4) ITER is an international research project on nuclear fusion, involving collaboration between China, the EU, India, Japan, Russia, South Korea and the United States. In 2013, work began in the south of France on construction of an experimental reactor, scheduled to become operational from 2035 (www.iter.org).

All these various characteristics concerning such aspects as size (initially and after a certain time lapse), risk, return, costs, etc. imply that the various forms of sustainable investment have different financing needs.

The financial sector plays a crucial role in the energy transition because part of the private finance for sustainable and green projects is channelled through that sector. The growth of this investment must be accompanied by redirection of capital consistent with a low carbon economy. Since the market for sustainable and green financial products is growing rapidly, adequate regulation is required and the financial sector must take account of the risks (and opportunities) associated with climate change. Although climate change has not created any new risk categories, the direct and indirect consequences for the financial system may take the form of market risk, credit risk or other specific risks for insurance companies. The transmission operates mainly via three different channels:

- material risks: the material damage caused by climate change and natural disasters could impair business solvency and be detrimental to the development of international trade. Those risks are particularly relevant for the insurance industry since it concludes insurance contracts covering such losses. It is important for the insurance sector to maintain sufficient funds in view of those risks. Uninsured risks may also affect the financial system if they damage corporate profitability and firms' ability to repay their debts;
- liability risk: this risk has both a technological and a legal dimension. First, scientific progress, in medicine for example, may make it possible to demonstrate a causal connection between a polluting industry and the health of consumers and workers. Such a finding could give rise to multiple legal actions which could damage the financial soundness of the industry found guilty. Also, there is a legal vacuum concerning this liability question. Retroactive changes to legislation may facilitate claims against polluting firms, subsequently leading to the bankruptcy of those firms and, via a cascade effect, also bankrupting the investors;
- risks associated with the transition to a low-carbon economy: if that transition takes place without proper preparation, or is precipitated by irreversible environmental damage, it could also affect the soundness of the financial system. A sudden revaluation of financial assets and commodities, and a rapid change in energy costs, could trigger economic and financial crises in the vulnerable sectors.

These three risks are exacerbated by the uncertainty inherent in the climate models, which makes it more difficult to reach decisions in the financial sector and heightens the danger of underestimating the damage associated with climate change.

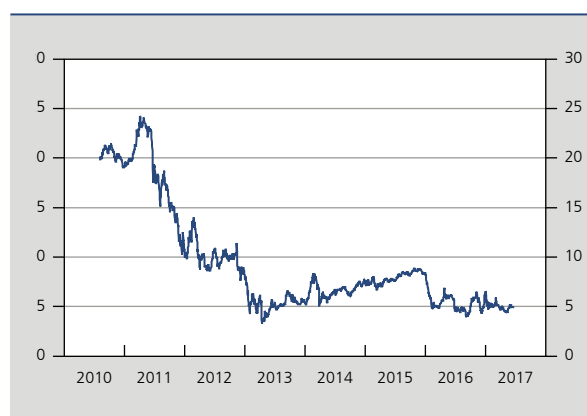
2.2 Factors hampering the development of sustainable and green finance

Government bodies are becoming increasingly aware of the importance of a green transition, and that has led among other things to the establishment of market mechanisms such as the carbon market to penalise pollution. Nonetheless, the efforts are currently insufficient to completely overcome the various factors which are holding back the development of a capital market capable of financing this transition (DNB, 2017). The barriers to the development of a funding method that supports the transition may be due to imperfections on the financial markets or gaps in economic policies.

2.2.1 Financial markets

In theory, according to the Nobel prize-winning economist Roland Coase, the establishment of carbon markets⁽¹⁾ or emission rights should be an instrument for limiting the externalities resulting from greenhouse gas emissions. The European Commission (EC) launched the European market in 2005 to reduce those emissions while leaving the industry some flexibility. In practice, the carbon price covers only part of the externalities caused by pollution. According to the EC's figures, the market covers around

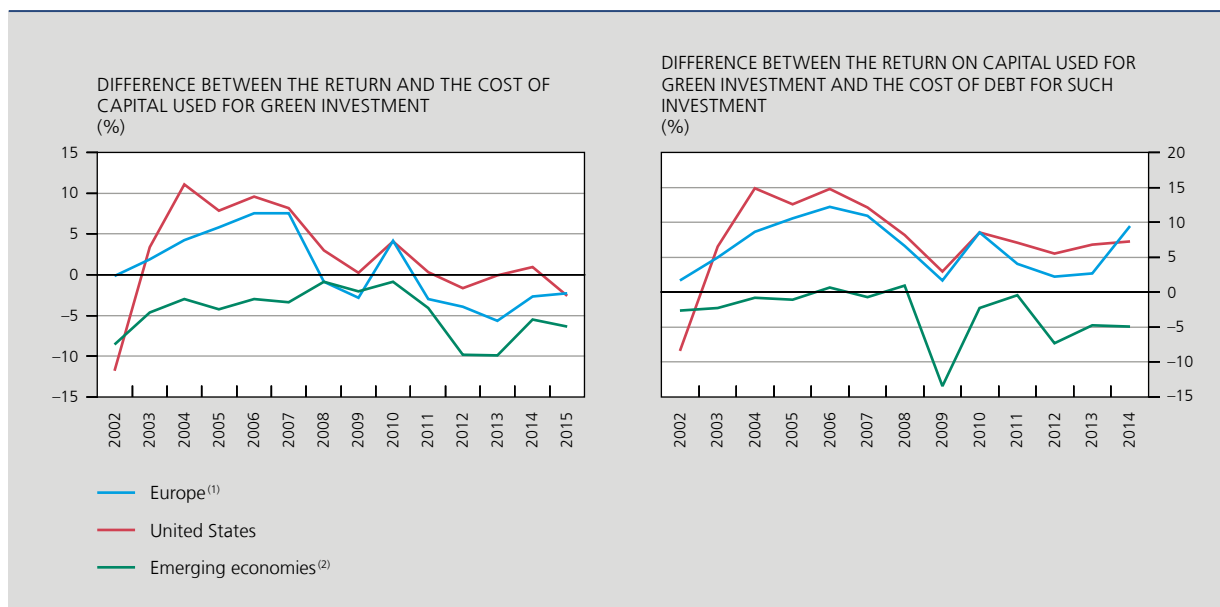
CHART 3 CARBON PRICE ON THE EUROPEAN MARKET IN ENVIRONMENTAL QUOTAS
(€/tonne of CO₂ equivalent)



Source: Thomson Reuters Eikon.

(1) There are various carbon markets in the world, specific to each country or region. The European market is the largest in terms of trading volume.

CHART 4 COST OF FINANCING GREEN INVESTMENT FOR LISTED COMPANIES



Source: OECD Business and Finance Outlook 2015.
 (1) Europe refers to the European Union plus Switzerland.
 (2) EME: emerging market economies.

45 % of the greenhouse gas emissions in the European Union (i.e. the 28 EU Member States plus Iceland, Liechtenstein and Norway). The collapse of the price, which has hovered around € 5 per tonne of CO₂ equivalent since 2013, is due mainly to the granting of relatively generous quotas in view of the downturn in economic activity during the crisis. In that period, industrial activity declined so that the pollution automatically diminished and the emission quotas were accumulated.

At present, that mechanism is insufficient to encourage the transition to a sustainable economy. Scientists estimate that each additional tonne of CO₂ equivalent released into the atmosphere reduces social welfare by \$ 37 to \$220 (Moore and Diaz, 2015). In view of that assessment, a price of € 5 per tonne is clearly too low, both to internalise the effects of pollution and to prompt industrialists to change their production methods. Moreover, that mechanism does not apply to certain polluting sectors, such as air transport outside Europe. A further point is that quotas are allocated in abundance in order to avert “carbon leakage”, i.e. the relocation of production activities to less strictly regulated countries.

(1) This return on capital is calculated as the average yield on the shares of companies in the Global Clean Energy Index.
 (2) The pay-back period measures the time necessary to recoup the initial amount of the investment in comparison with the cumulative cash flows.
 (3) According to the OECD’s calculations.

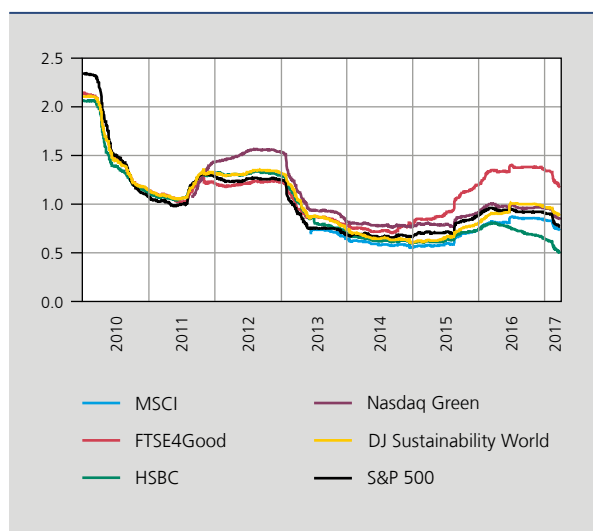
The failure of the carbon market therefore implies that firms which take account of climate change in their investment strategy gain only a small competitive advantage over polluting firms.

It also seems that sustainable and green investment projects cannot generate a financial reward for their environmental and other efforts. For example, investment in green energy offers too low a return to attract large-scale private finance on the equity market. The main stumbling block impeding the development of a capital market for green energy is the inadequate return on capital invested in those projects⁽¹⁾. Since 2008, the return on that capital has in fact dropped below the cost of capital (see left-hand side of chart 4). It follows that, according to the equity market, green investment does not create enough value. The insufficient return is attributable mainly to the high cost of capital resulting from the greater technological risk and the lack of a stable investment policy.

Moreover, the projects in question involve a relatively long investment period, so that they are riskier. For most of them, the pay-back period⁽²⁾⁽³⁾ exceeds five years, on average.

Finally, the problem of the return on capital is due partly to the fact that most of the current investment projects are funded by debt, which makes the return on equity

CHART 5 HISTORICAL VOLATILITY⁽¹⁾ OF GREEN SHARE INDICES⁽²⁾ AND THE S&P 500 MARKET INDEX (in %)



Source: Thomson Reuters Eikon.

(1) The volatility is calculated as the standard deviation of daily returns over the last two years.

(2) MSCI is the index that comprises the global firms demonstrating the best environmental and social practices in their sector of activity. FTSE4Good is the index comprising the 40 best European firms in terms of environmental practices. HSBC is the HSBC Climate Change Index. Nasdaq Green is the Nasdaq Green Economy Index. DJ Sustainability World is the Dow Jones Sustainability World Index.

less relevant for the investors (see the right-hand side of chart 4). To attract more private capital, it is imperative to find a way of improving the financial benefits of the positive externalities of green investment in the light of social welfare. In that context, public entities have a key role to play in establishing mechanisms offering financial compensation for the favourable effects of green energy in particular and sustainable investment in general.

Despite the challenges mentioned above concerning profitability, the equity market does not appear to see green and sustainable investment as riskier than the average. The volatility of some of the indices representing such investment, published by FTSE, MSCI, HSBC, Nasdaq and Dow Jones, is located on either side of the historical trend in the volatility of a “traditional” market index such as the S&P 500. Only the FTSE4Good index comprising the 40 best European firms in terms of environmental practices seems to indicate a higher risk, which is probably due to the greater volatility on the European markets during that period. The volatility of the green and sustainable indices implies that investors do not appear to be influenced by the intrinsic risk factors of green and sustainable projects, such as a long pay-back period. That representation of the risk contrasts with the high cost of capital and the long-term character of green and sustainable projects.

Various factors may explain this perception of a limited risk. First, the indices only provide information on projects funded partly by equity for some listed companies. However, in practice, that is not the preferred financing structure for investment with a risk profile like that of green and sustainable projects. It raises the question whether green indices (and more generally the equity market indices) are representative of the “typical” green and sustainable investment projects which are often carried out by young (unlisted) companies and usually tend to be financed by debts. Another point is that projects which reach the stage of offering shares in their capital to the public are often more mature and therefore less risky.

2.2.2 Economic policy and challenges of climate change

Not only the financial markets fall short in internalising the cost of pollution and in promoting green and sustainable investment projects but also the fact that government policy is insufficiently geared to the climate goals is a major hindrance to the development of sustainable finance.

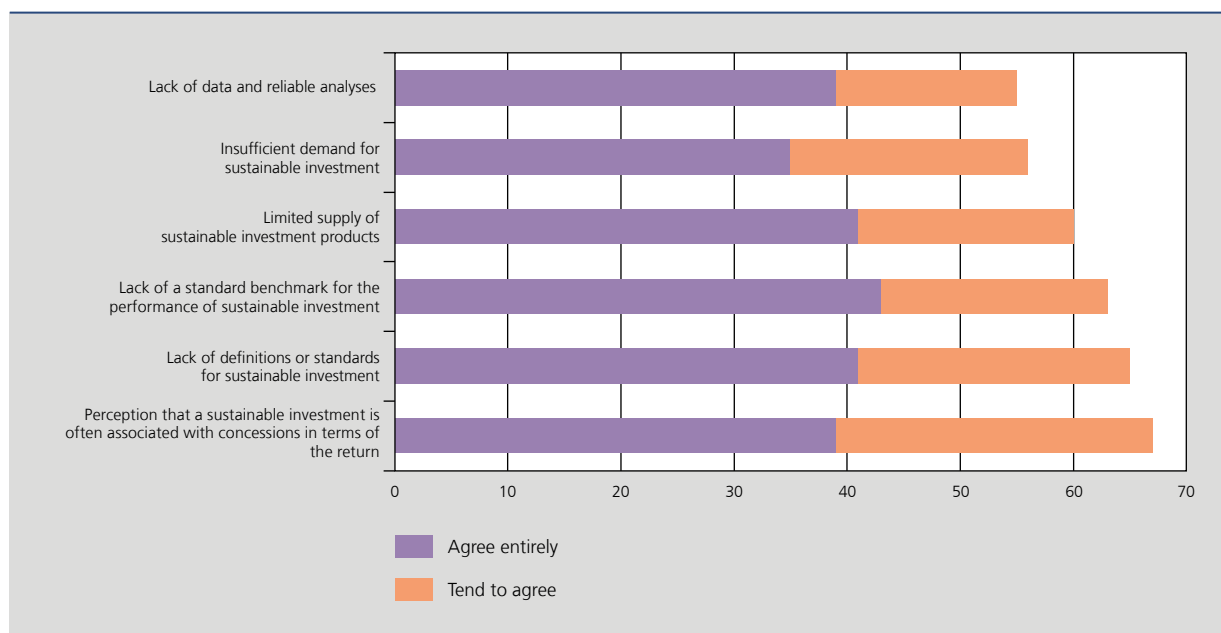
These are some of the public policies that could be adapted:

- Fiscal policy that indirectly encourages pollution: it consists mainly of measures dating from the period before climate goals were explicitly taken into account; reforming those measures is expensive or difficult (e.g. the tax concession for company cars).
- The ambitiousness of the climate goals and of the restrictions on greenhouse gases at national and international level.
- Government policy on climate: sustainable and green projects are long-term projects requiring some stability in government policy in order to attract investors. Political uncertainty can heighten the risks that those investment projects entail, and consequently increase their capital cost and impair their profitability.
- The polluter’s legal liability: clear legislation on corporate liability permitting legal action in cases where pollution has an adverse impact on well-being or health could help to internalise the external costs attributable to the polluter.
- A carbon price that is too low to discourage investment with a significant carbon footprint.

Within the financial sector, too, a number of factors are hampering the development of sustainable and green finance. Examples include:

- Reluctance regarding long-term (illiquid) investment projects, in view of the distortions and risks that

CHART 6 RESULTS OF A SURVEY⁽¹⁾ CONCERNING THE FACTORS HAMPERING THE GROWTH OF GREEN AND SUSTAINABLE FINANCE



Source: Morgan Stanley Institute for Sustainable Investing and Bloomberg L.P.

(1) The survey was conducted in 2016 on the basis of telephone calls to 402 asset managers in the United States having at least \$ 50 million in assets under management. All the firms surveyed offer green and sustainable investment products.

- the projects may imply for the banking sector’s balance sheets. Conversely, the growing proportion of long-term liabilities for the financial sector (e.g. for insurers and pensions funds) also offers funding potential.
- Information asymmetry and reporting that fail to reflect the climate risks (such as the amount of stranded assets, i.e. the assets devalued due to sudden and substantial changes in legislation, environmental constraints, or technology shocks) (OECD, 2017). A transparent policy on climate risks could reveal the vulnerability of some non-sustainable projects and therefore encourage the internalisation of the environmental risks.
 - A non-existent or inadequate ethical investment code: the lack of a code of conduct recognised by the business federations.

2.2.3 Obstacles to green finance according to the asset managers

For asset managers, the absence of any definition or standards is the main impediment to sustainable investment. According to a survey conducted in 2016 among a panel of asset managers in the United States, the lack of transparency – in the absence of a consensus on what

constitutes a sustainable and green product, and with no code of conduct in the industry and no recognised supervisory body to ensure compliance with the rules – is one of the biggest obstacles to sustainable finance⁽¹⁾. This survey reveals that the lack of a standard definition of sustainable investment is an even greater barrier than the profitability of such investment. The absence of a standard performance benchmark which takes account of the positive external effects of this kind of investment ranks third. The limited supply and the fact that demand is deemed insufficient are also significant factors. Finally, the lack of data and reliable analyses is another serious problem hampering the development of sustainable finance. However, it should be noted that the sample of this panel is distorted by a selection bias (probably exerting upward influence on the findings) since the managers polled sell sustainable investment products and are therefore already convinced, in principle, of the commercial potential of this market.

3. A promising example: green bonds

Apart from the equity market where, as explained above, numerous factors are holding back sustainable and green investment, asset managers, investors and issuers can also turn to the bond market. Here, green bonds which have

(1) In the poll, sustainable finance was defined as investment in firms or funds that aim to link the financial return to a beneficial impact on society and the environment.

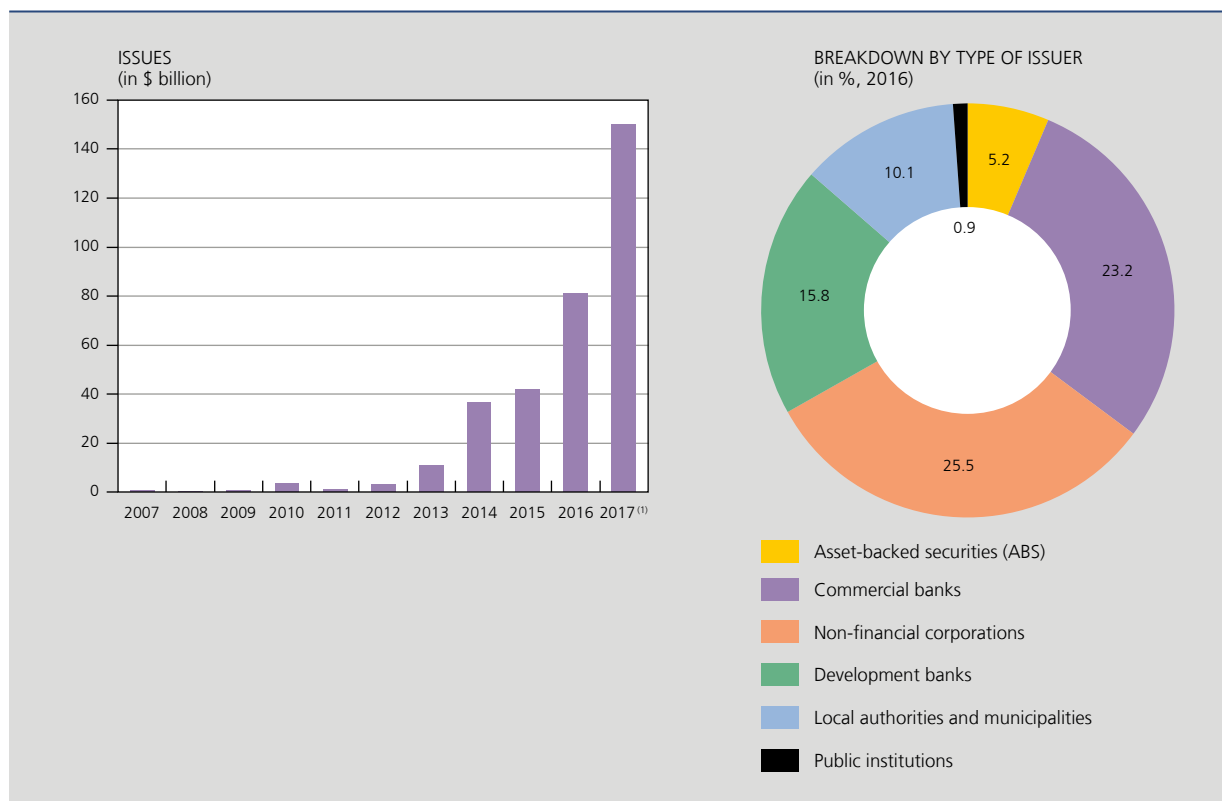
been developed to exploit the potential of bonds and bond markets are making rapid progress. They provide fairly cheap capital in the medium and long term for environmental projects.

Green bonds are a recent (2007) type of bond, often labelled, intended for funding environment-friendly projects or activities in such fields as energy efficiency, renewable energy and transport. The green bond market was initially dominated by international public institutions such as the European Investment Bank (EIB) and the World Bank, which responded to the demand from a number of institutional investors interested in environmental questions (Natixis, 2017). Since then, the private sector has gradually entered the market. In 2013, it gained significantly in importance when entities such as the International Finance Corporation (IFC) and non-financial corporations such as EDF, Toyota and Unilever issued green bonds amounting to billions of dollars. Demand for subscription to these bonds often exceeded the amount offered, demonstrating that investors were very interested in this product.

At global level, the amount of green bonds issued has increased substantially in recent years. In 2016, it totalled \$ 81 billion (eight times the 2013 figure) and that is expected to virtually double in 2017. Moreover, the issuers on this market have diversified – from development banks to private firms and local authorities – as have the underlying investments – renewable energy, energy efficiency, transport infrastructure, buildings and waste. If we consider the entire market for green bonds worldwide, the biggest issuers in 2016 were non-financial corporations (25.5 % of the amounts issued), commercial banks (23.2 %) and development banks (15.8 %). Issues by local authorities and municipalities made up roughly 10 % of this market (compared to 6 % in 2015).

The steady pace of issues in turn attracted a very varied group of institutional investors from both the public and the private sector, ranging from Swedish pension funds to “responsible” American asset managers and from ethical Dutch banks to socially responsible French investment projects. This enthusiasm is due partly to the growing importance that investors attach to sustainable development.

CHART 7 GREEN BOND ISSUES AT GLOBAL LEVEL



Source: Climatebonds.net.
(1) Forecasts.

In addition, green bonds appear to exhibit the same financial characteristics as traditional bonds of the same issuer (see for example OECD and Bloomberg Philanthropies, 2015). That includes the credit quality, the yield and the issue price. In fact, it is estimated that the credit profile of green bonds is identical to that of the same issuer's other bonds ("plain vanilla", or traditional bonds ultimately redeemed at par, paying a fixed interest rate via an annual coupon). Owing to the strong demand for green bonds, one might think that their issuers could offer an interest rate lower than that on traditional bonds. In practice, the effect is small, however; while the keen demand at the moment when green bonds are issued can sometimes lead to a slightly lower yield than on a traditional bond, that effect is generally very small and has little impact on the general yield (Mirova, 2014). For example, chart 8 shows the yield curve of traditional bonds (EIB) and green bonds (GB) issued by the European Investment Bank and by the Nordic Investment Bank. The differences are minimal and are not significant. Finally, it should also be noted that the substantial demand for green bonds should be viewed in perspective, since the market currently represents only a tiny fraction of the global bond market (estimated at around \$ 100 000 billion).

In the context of sustainable finance, green bonds offer several advantages: they have a direct link with identifiable projects, without any loss of yield or liquidity. They are also increasingly often accompanied by reporting on the environmental and social effects. Apart from financial considerations, the growth of the green bond market has

also been stimulated by the aim of developing financial tools specifically for combating climate change, which explains why green bonds are often issued by development banks. It was also the aim to create a new market so that green bonds could develop into a fully-fledged asset category with their own specific funds and specialist investors. Today, a deep, liquid and diversified market in green bonds amounting to several billion dollars seems a realistic prospect.

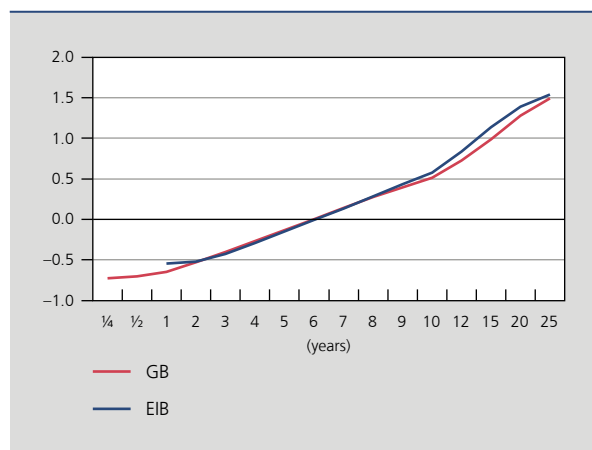
From the issuers' point of view, green bonds are a preferred financing instrument for diversifying their investor base, more specifically in order to attract long-term responsible investors. By issuing green bonds, firms can also promote their sustainable development strategy and build up their reputation in that area (Shishlov *et al.*, 2016).

This type of financial instrument is also suitable for investors attracted by the more extensive information available on the underlying asset (increased transparency obligation) and more generally by the corporate strategy of the issuer (Ministère de l'Environnement, de l'Énergie et de la Mer, 2016). One of the major advantages of non-sovereign green bonds is therefore the extra transparency and predictability that they offer investors. Green bonds also enable investors to diversify their portfolios, in particular by acquiring assets which are not at risk of becoming stranded. Finally, these instruments help investors to implement their own long-term climate strategy and to promote it among savers (Banque de France, 2016).

However, green bonds also generate additional costs compared to traditional bond issues. For the issuer, those costs concern the need to label the securities, and the reporting requirement; for the investor, they include the time entailed in analysing that type of bonds.

Furthermore, the market is subject to credibility risks. In this connection, there is no clear definition of what "green" means, and there is insufficient confidence in the follow-up and assessment of green bonds, especially as that implies closer supervision of the funded projects on the part of investors. There is no legal rule on what qualifies for funding via "green bonds". Failing that, the market focuses mainly on transparency so that investors can judge the quality of the issue. That is why the leading market players have established tacit rules. Examples include the Green Bond Principles (GBPs), laid down by the International Capital Market Association (ICMA, 2016), which identifies the various types of green bond and the factors which must be taken into account when issuing them. The GBPs specify a number of good practices to be respected: defining in advance the activities potentially eligible for funding via green bonds, establishing a mechanism for independent

CHART 8 YIELD CURVE OF TRADITIONAL BONDS (EIB) AND GREEN BONDS (GB) ISSUED BY THE EUROPEAN INVESTMENT BANK AND BY THE NORDIC INVESTMENT BANK
(in %)



Source: Thomson Reuters Eikon.

supervision over the ecological character of the issue, and producing a public annual report permitting monitoring of the projects' progress. The Climate Bonds Initiative (CBI) has devised standards facilitating voluntary certification of the impact on the climate. There are also numerous rating agencies that conduct non-financial audits. However, labelling and external assessment are not compulsory according to the existing approaches.

There is another risk inherent in green bonds: market players are particularly worried about the reputation risk associated with "greenwashing", i.e. the issue of green bonds to fund projects which are not "green" or which do not fulfil the commitments, thus damaging investor confidence. That risk is all the greater since there is no definition of "green" projects, the external checks are not standardised and, above all, are not compulsory, and the reporting methodologies are divergent.

Other specific risks may also arise. For instance, issuers may be confronted by a "green default" risk, or in other words, the risk of being held legally liable for failure to comply with the commitments concerning the green character of the project. Finally, it is also necessary to take account of credit risk and counterparty risk. Those risks relate primarily to the investment projects funded, which involve new players or relatively innovative spheres of activity, and to the long or very long period of time associated with such investment.

4. Some points concerning Belgium

In Belgium as in the European Union, interest in sustainable and green finance is on the rise. That is evident, for example from the recent development of legislation on the subject. Also, there have been some financial sector initiatives and moves concerning labelling which have contributed to the spread of financial products in that category, particularly savings accounts for consumers and investment funds classed as sustainable.

(1) *Moniteur belge/Belgisch Staatsblad* of 31 December 2002.

(2) *Moniteur belge/Belgisch Staatsblad* of 15 May 2003.

(3) *Moniteur belge/Belgisch Staatsblad* of 19 October 2012.

(4) The Law of 8 June 2006 (*Moniteur belge/Belgisch Staatsblad* of 9 June 2006) regulating economic and individual activities concerning weapons, as amended by two subsequent laws, prohibits among other things the financing of any Belgian or foreign company whose activity consists in the manufacture, use, repair, marketing, sale, distribution, import or export, warehousing or transport of anti-personnel mines, cluster munitions and/or dummy ammunition and armouring containing depleted uranium or any other type of industrial uranium within the meaning of this law with a view to their proliferation.

(5) The Law of 20 March 2007 stipulated that, by no later than 1 May 2008, a public list must be published of firms proven to engage in one of the activities prohibited by the Law, firms owning a stake of more than 50% in those firms, and collective investment institutions holding financial instruments of one of the said firms. However, that list has not yet been published.

(6) Directive 2014/95/EU.

(7) Directive (EU) 2016/2341.

4.1 Legislative framework

In Belgium, the first initiative aimed at promoting sustainable and green investment dates from 2002⁽¹⁾. It led to the adoption of a Programme Law specifying that institutions providing supplementary pensions for self-employed persons must include in their annual report information on the degree to which they take account of social, ethical and environmental aspects in their investment strategy. A 2003 Law⁽²⁾ made provision for a similar transparency measure for all supplementary pension institutions.

In 2012, two provisions of the Law on certain forms of collective investment portfolio management⁽³⁾ (aimed at UCIs) are worth mentioning. The first concerns the prospectus, which must specify the degree to which social, ethical and environmental aspects are taken into account in implementing the investment strategy; the second relates to the annual report, which must supply information on the way in which those aspects were taken into consideration.

In regard to controversial investment, Belgium adopted a Law in 2006 on the financing of controversial weapon systems⁽⁴⁾. This legislation meant that Belgium played a pioneering role here, but the implementation of the Law is still posing problems as the list of firms engaging in activities that it prohibits has not been published⁽⁵⁾.

Finally, for completeness, it should be noted that a draft Resolution is currently being debated in Parliament whereby members are asking the federal authorities to refrain from investing in fossil fuels.

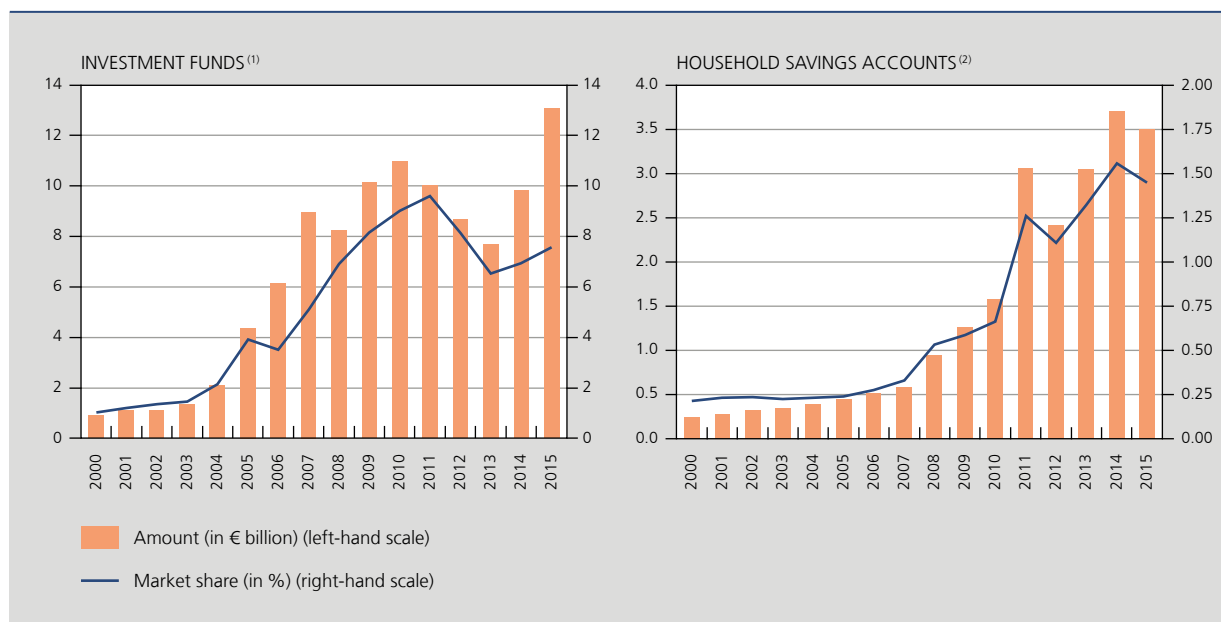
At European level, a Directive⁽⁶⁾ was adopted in 2014 requiring listed companies with more than 500 employees to include environmental and social information in their financial reports.

In addition, a new Directive (IORP II) on institutions for occupational retirement provision⁽⁷⁾ was adopted in 2016. It emphasises the importance of good risk management, including the risks associated with climate change and the use of resources, ecological risks, social risks and the risks relating to the depreciation of assets resulting from changes in the regulatory framework (stranded assets). However, although the Directive encourages IORPs to improve their management of the environmental risks, it does not contain any binding provisions on the subject.

4.2 Private initiatives

Although there is still no legal framework in Belgium defining and regulating sustainable investment like the one

CHART 9 SUSTAINABLE AND GREEN INVESTMENT IN BELGIUM



Sources: Forum Ethibel, on the basis of data from the BEAMA and financial institutions, NBB.

(1) Investment funds marketed in Belgium by open-ended investment companies (BEL and LUX), funds with capital protection, bond funds, etc. Share of those funds in the total funds invested in UCIs.

(2) Savings accounts intended to finance solely projects concerning the social economy or the environment. Share of these accounts in the total assets invested in savings accounts in Belgium.

developed in France in 2016⁽¹⁾, various certificates and labels relating to the sustainable and green character of investment are nevertheless available. They are awarded by entities such as Forum Ethibel, a non-profit organisation involved in the rating, independent monitoring and certification of financial products. Created in 1992, the Ethibel Pioneer label is awarded to investment funds that invest solely in equities and bonds of firms which are among the leaders in their sector in all aspects of corporate social responsibility. The funds may also include government bonds and bonds issued by international institutions. In 2004, Forum Ethibel launched a second label, called Ethibel Excellence, to meet the needs of financial institutions and investors. It is awarded to funds investing in firms which perform above average in their sector in all aspects of corporate social responsibility, or in government bonds and bonds issued by international institutions. On the Belgian market, there are currently six funds with such a label.

Unlike labels guaranteeing a sustainable portfolio composed on the basis of very strict selection criteria drawn up by the label manager (in this case Forum Ethibel), the

certificates give investors a guarantee that the statements made by the fund manager are true, namely that they meet all the non-financial criteria imposed by the label manager and predefined in a specification. The certificate therefore does not say anything about the intrinsic quality of the product or about whether the investment conforms to the label manager's own standards concerning ethical or sustainable investment. Just over twenty investment and savings products have received this certificate.

Other labels have also been introduced recently. For example, in the sphere of economic solidarity, the *Financité et Fairfin* label (created in 2014) is issued for products that permit direct investment in the social economy, such as shares in a cooperative society or bonds of a non-profit organisation. It certifies that, on the basis of social criteria, the products fund activities that generate social and environmental benefits.

In 2013, Febelfin (the Belgian financial sector federation) and BEAMA (Belgian Asset Managers Association) harmonised their definitions of sustainable financial products. That harmonisation was based on transparency concerning (1) controversial activities, (2) the way in which the strategy for composing and managing sustainable products is implemented, and (3) external supervision. Apart from this

(1) The first public ISR (Investissement Socialement Responsable) label was launched in France in 2016. It is intended to guarantee the extra-financial quality of the products and facilitate the spread of this type of investment.

transparency, the approach also implies some minimum requirements that must be met by firms or public authorities which may be financed with funds derived from sustainable financial products. Certain activities are excluded, such as the financing of the arms industry or the financing of projects, businesses or countries which clearly violate the principles of the United Nations Global Compact.

4.3 Some figures

On the basis of data from the BEAMA and financial institutions, the amount invested in sustainable investment funds in Belgium came to around € 13 billion in 2015, representing roughly 7.6% of the Belgian investment fund market. After contracting between 2010 and 2013, that market has been expanding again for two years.

In addition to investment funds, banks also offer solidarity savings products and/or sustainable savings products for individuals. These are savings accounts from which the funds are used by credit institutions to finance projects in the sphere of the social economy and economic solidarity, or environmental projects. The amount saved by Belgian households in this type of product came to € 3.5 billion in 2015, or 1.45% of the outstanding total on savings accounts in Belgium.

5. Main challenges and implications for public policy

The analysis elements presented above highlight two major obstacles which the government should remove in order to facilitate further expansion of sustainable and green finance. This concerns the lack of transparency in regard to financial products in this category (G20 Green Finance Study Group, 2016) and the general failure to take account of externalities, be they negative or positive (Paris Europlace, 2016).

The definition and implementation of common standards is an essential precondition for developing the market and ensuring confidence in that market. Improved market standardisation should aim to increase transparency for investors in order to reduce the reputation risk and transaction costs. Various institutions and countries have set their own rules for the valuation and labelling of green assets, but the diversity in that regard indicates that great heterogeneity persists. That is due partly to the continuing dilemma between opting for a flexible label that leaves some scope for initiative and market dynamics, and choosing a label which is more exacting and therefore ensures greater integrity and investor

confidence. The idea of a voluntary label stricter than the current labels is relevant, but is only practicable for a region where there is unanimity on the meaning of “sustainable”, e.g. a potential European label.

Other initiatives could also foster growth of the sustainable finance market. The development of equity or bond indices enhances the comparability of the financial products offered and reduces the cost of access to information for investors. In the case of green bonds, for example, some stock exchanges (London, Oslo, Stockholm) have launched dedicated exchange listings, which facilitate access to information and encourage expansion of the secondary market.

In parallel with the introduction of common standards and specific equity or bond indices, it is also appropriate to set up bodies to oversee sustainable financial products in order to prevent “greenwashing”. Centralised control and certification would probably also facilitate a reduction in the labelling and reporting costs associated with these assets.

Another possible move would be for the government to oblige private market players to take account of negative externalities (e.g. by setting a high carbon price) or the financial risks associated with assets which could become stranded. Such measures could indirectly drive up the cost of polluting investment and reduce the relative cost of sustainable investment without increasing the risks to financial stability.

Establishment of mechanisms that encourage the holding of sustainable assets is another conceivable approach. Such mechanisms could take the form of adjustments to the rules on holding securities to finance the energy transition, e.g. via a “green supporting factor” which could take the form of less stringent requirements for capital made available for funding those assets and investing in them, as proposed by the Fédération française des banques (2016).

Government bodies, and particularly the regulators, have begun issuing recommendations for addressing these challenges by means of transparency, on the one hand, and incentive schemes on the other.

For instance, the Task Force on Climate-related Financial Disclosures (TCFD) of the Financial Stability Board (FSB) has recommended transparency based on four principles:

- governance: the TCFD advocates disclosure of the organisation’s governance concerning the risks and opportunities relating to climate change;

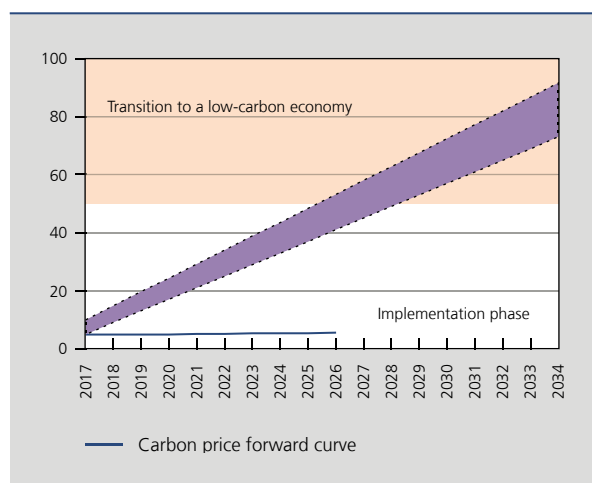
- strategy: the TFCF advises disclosure of the actual and potential risks and opportunities that climate change implies for the organisation of the business, its strategy and its financial planning. The organisation may explain how various climate change scenarios would affect its strategy;
- risk management: the TFCF recommends disclosure of the practices implemented to identify, assess and manage the risks resulting from climate change;
- metrics and targets: the TFCF advocates transparency regarding the tools and targets used to assess and manage the risks and opportunities associated with climate change.

In addition, since the regulators need to have full information on the risks, transparency must extend to the whole of the financial sector and, in particular, the sectors most vulnerable to climate change.

The regulators may supplement the static picture obtained from the transparency process in two ways: (1) by introducing “carbon” stress tests that can identify the vulnerabilities of financial institutions when confronted with extreme changes concerning climate and energy, and (2) by introducing a target “corridor” for future changes in the carbon price.

This corridor indicates the minimum price for emission rights ensuring that this mechanism has a deterrent effect on pollution. A maximum price must also be set in order to ensure a smooth transition without jeopardising the stability of the economic and financial fabric.

CHART 10 CARBON PRICE “CORRIDOR”
(in €/tonne)



Sources: Report of the Canfin-Grandjean Commission, Thomson Reuters Eikon.

The minimum and maximum prices must gradually rise to bring about the transition leading to a low-carbon economy (the orange zone in chart 10), during which the emission price becomes sufficiently high to force polluting industries to change. The starting price may appear low compared to the real cost of emissions, but the signal of a rising price can help to initiate the change. Of course, this mechanism is totally ineffective unless it is implemented worldwide, in order to prevent the most polluting industries from relocating to countries with less stringent environmental rules.

Reconciliation of the operation of the financial markets with social and environmental goals is a general objective that can be sub-divided into various aspects: optimisation of long-term performance and improved internalisation of the externalities in the valuation of assets, reallocation of capital to low-carbon assets, and better awareness of the risks associated with climate change.

To achieve these objectives, government policy can focus on three main points: the creation of opportunities in the sphere of sustainable and green investment, extension of the time horizon for investors, and establishment of environmental targets.

Developing the opportunities for sustainable investment

Government policy on this subject tries to introduce incentive schemes in order to lower the capital cost for sustainable projects. Among other things, this approach involves identifying the projects in question and the assets used to fund them (loans, bonds, equities). In this connection, the first aim of government policy should be to boost the return on those assets in order to bring them to the attention of a large number of investors, and thus steer private investment towards sustainable financial products, such as green bonds. Examples of specific instruments which may be used include “risk-sharing”, whereby the risk is shared between public and private players, or the creation of incentives such as the “green supporting factor” mentioned earlier.

Extending the time horizon for investors

This point requires changes in investors’ strategy and behaviour so that they optimise the return on their assets in the long term, instead of in the short term. The government’s role is to create demand for these long-term approaches by establishing a favourable regulatory framework (reporting obligations regarding long-term risks, limits on remuneration based on short-term performance, etc.). The underlying idea is that if the financial market

players extend the time horizon for their decisions, they must necessarily take account of the new constraints resulting from climate change by anticipating the changes that will affect certain economic sectors, and the inevitable political and regulatory constraints that will undoubtedly try to limit the effects of those changes.

Aiming at an environmental target in the legislation

In order to achieve a global environmental target, explicit economic targets could be set ("green" share, percentage of capital devoted to renewable energy, ceiling on the financing of energy sources emitting the most greenhouse gas, etc.). Each country could choose the most appropriate ways of meeting the international obligations, depending on the structure of its domestic financial system.

Conclusion

The increasing interest in sustainable and responsible investment is linked to a number of recent developments at global level. One of the most important developments is awareness of the climate change caused by economic activity. The need to limit global warming and the commitments that countries have made on that subject have triggered debate on the importance of transforming production processes and their financing. As regards energy production, transport, and energy efficiency in particular, massive investment in green projects will be needed in the near future to meet the climate targets. However, those projects feature some characteristics (long-term horizon, use of new technologies, complexity, associated risks and

uncertain returns) that necessitate a change in the current financial market framework.

A number of factors still hinder the supply of sustainable and green finance. For one thing, the carbon market in its current form does little to penalise polluting industries and therefore fails to take full account not only of harmful effects on the climate but also of the beneficial impact of sustainable and green investment. Moreover, the returns on this investment do not yet appear sufficiently attractive for potential investors. In addition, some of the economic policies or rules prevailing on the financial markets are still inadequate to encourage a smooth transition for the financing of the economy and avoid the creation of stranded assets. These imperfections, coupled with the relative absence of transparency, the lack of any shared definitions, and the need for a body to supervise financial products labelled as sustainable, are slowing down the development of these products. Conversely, green bonds, which are usually dedicated to clearly identified projects, are proving to be a promising example of a sustainable financial product.

In order to meet the growing demand, the supply of sustainable and green finance will have to address a number of challenges, and the public authorities have a major role to play here. They have various mechanisms at their disposal for channelling the flow of funds towards more environment-friendly industrial projects that also show greater respect for social and ethical criteria or those relating to better governance. These mechanisms concern incentives (definition of binding targets, consideration of externalities), legislation (establishment of supervisory bodies, consideration of the long-term risks) and market transparency (labelling, creation of equity and bond indices).

Bibliography

2° Investing Initiative (2015), *Politiques publiques pour le secteur financier et transition énergétique*, July.

Banque de France (2016), "Les green bonds: solution au financement de la transition ou effet de mode?", *Bulletin n° 208*, November-December.

Bayot B., A. Cayrol, A. Marchand and V. Verdonck (2016), "L'investissement socialement responsable en Belgique", *Report 2016*, Financité, December.

Climate Bonds Initiative (2017), *Green bonds highlights 2016*.

Commission Canfin-Grandjean (2016), *Mobilizing climate finance: a roadmap to finance a low-carbon economy*.

DNB (2017), "Bottlenecks in funding of green investments", *DNBulletin*, January.

EC (2017), *Climate action*: https://ec.europa.eu/clima/policies/strategies/2030_fr.

Eurosif (2016), *European SRI study 2016*.

FEPEG (2017), *Statistiek elektriciteit*: <https://www.fepeg.be/statistiek-elektriciteit>.

Fédération française des banques (2016), *Réussir le financement de la transition énergétique*, September.

G20 Green Finance Study Group (2016), *G20 Green Finance Synthesis Report*.

Global Sustainable Investment Alliance (2016), *Global sustainable investment review*.

ICMA (2016), *Green bond principles. Voluntary process guidelines for issuing green bonds*, June.

IEA (2016), *Electricity information 2016*, Paris.

IEA and IRENA (2017), *Perspectives for the energy transition – Investment needs for a low-carbon energy system*.

IMF (2016), *Delivering on the 2030 Agenda*, Press Release 16/455, 9 October.

Ministère de l'Environnement, de l'Énergie et de la Mer (2016), *Les obligations vertes au service de la transition énergétique et écologique*, Théma, September.

MIRA (2016), *Duurzaam sparen en beleggen in België: actualisatie tot 2015*, December.

Mirova (2014), *Green and social bonds: what's at stake for investors?*, September.

Moore F.C. and B. Diaz Delavane (2015), *Temperature impacts on economic growth warrant stringent mitigation policy*, Nature Climate Change.

Natixis (2017), *Poussée d'énergie sur le marché des Green bonds*, *Market insights*, February.

OECD and Bloomberg Philanthropies (2015), *Green bonds – Mobilising the debt capital markets for a low-carbon transition*, *Policy perspectives*, December.

OECD (2017), *Green financing: Challenges and opportunities in the transition to a clean and climate-resilient economy*, *Financial Market Trends*, Vol. 2.

Paris Europlace (2016), *Initiative finance verte et durable de la place de Paris*.

SEO Economisch Onderzoek (2009), *De kapitaalmarkt voor duurzame projecten*, Amsterdam.

Shishlov I., R. Morel and I. Cochran (2016), *Beyond transparency: unlocking the full potential of green bonds*, Institute for Climate Economics, June.

Task Force on Climate-related Financial Disclosures du Financial Stability Board (2016), *Recommendations of the Task Force on Climate-related Financial Disclosures*.

Trends (2017), *Les "green bonds": plus qu'un effet de mode*, 6 April.