SustainaWeekly

Why physical risks are key for the here and now

- **Economics Theme: The World Meteorological Organization estimated a 50-50 chance that global temperature rise would exceed 1.5°C in at least one of the next five years. This should bring physical risks into sharper focus. Well-known macroeconomic projections of the physical risks are very likely to be underestimates.**
- **Strategy Theme: Residential real estate bond issuers have been reporting on their portfolio emissions for a few years already. We compare the German issuer emission intensities against Dutch issuer Vesteda. Not only does Vesteda have lower emission intensity, it does so from a position of luxury given the low issuer debt levels.**
- **ESG Bonds: ASML came to the market last week with a debut green bond. We do not see a reason why there shouldn't be a greenium in ASML's new green bond. Orange issued its second sustainability bond, which was more than 6x oversubscribed. NN Bank issued the first green covered bond from a Dutch financial institution.**
- **Company & Sector news: A circular economy is positive for further sustainable development and economic growth. Dutch material productivity is the highest of all EU countries. The Dutch government's goal of a 100% circular economy by 2050 is ambitious, but has the potential to yield great benefits for society and the economy.**
- **ESG in figures: In a regular section of our weekly, we present a chart book on some of the key indicators for ESG financing and the energy transition.**

In this edition of the SustainaWeekly, we start by arguing that physical risks from climate change are not just a long-term issue, but should be a consideration for the here and now. The increased frequency of extreme events can have a profound impact on the behaviour of consumers, companies and financial institutions. We go on to argue that Dutch residential real estate issuers are in pole position – relative to German peers - to reduce emissions. Meanwhile, we asses recent issuance, where we see corporates taking advantage of the ESG label to issue bonds in volatile markets. Finally, we look at trends in useful usage of industrial waste in the various subsectors. Enjoy the read and, as always, let us know if you have any feedback!

Nick Kounis, Head Financial Markets and Sustainability Research | nick.kounis@nl.abnamro.com

1.5 degree breach brings physical risks into sharper focus

Nick Kounis – Head Financial Markets & Sustainability Research | nick.kounis@nl.abnamro.com

- **50-50 chance that global temperature increase exceeds 1.5°C in at least one of the next five years**
- **This should bring physical risks into sharper focus, as the impacts are not just long-term**
- **Physical risks derive from gradual global warming, but also from extreme weather events**
- **The increased frequency of extreme events can have a profound impact on the behaviour of consumers, companies and financial institutions**
- **Well-known macroeconomic estimates of the physical risks are very likely to be underestimates**

A report last week from the World Meteorological Organization (WMO) estimated a 50-50 chance that global temperature increase compared to preindustrial levels would exceed 1.5°C in at least one of the next five years. Actual climate change is often wrongly perceived as a long term issue, which means that there is more focus on the economic effects of transition rather than physical risks. However, this report – and others, most notably from the IPCC – should be a wake-up call both in terms of the urgency of mitigation and adaptation, but also to get a better understanding of physical risks.

Crossing a key benchmark

The WMO published its Global Annual to Decadal Climate Update earlier this week (see **here**). The key takeaway was that the chance of global near-surface temperature standing at least 1.5°C above preindustrial levels in at least one year between 2022 and 2026 is about as likely as not (48%). It is important to note that this does not mean that global warming would already be structurally exceeding this benchmark. The WMO explains that there is only a small chance (10%) of the five-year mean exceeding this threshold. Having said that, the direction of travel is clear. For instance, the chance of the five-year mean for 2022-2026 being higher than the last five years (2017-2021) is 93%.

Physical risks in the here and now

Such forecasts as well as the clear increase in the frequency of extraordinary weather events over recent years, should bring physical risks into sharper focus. Economists group physical risks from climate change into two categories. There are physical risks that derive from gradual global warming (“chronic physical risk”) and those that derive from extreme weather events (“acute physical risk”).

Economic impact of gradual warming

Gradual global warming can cause economic losses because higher temperatures affect the productivity of workers and agricultural crops. Labour productivity could be reduced by diminished physical and cognitive performance. Extreme heat could also reduce effective labour supply by increasing the mortality of the population. The productive capacity of the economy could also be reduced by a diversion of resources from productive investment and research and development towards adaptation (measures taken to reduce vulnerability to actual and expected climate change).

Economic impact of extreme events

The impact of extreme weather events – such as floods, droughts, cyclones and heat waves – can impact both the supply and demand side of the economy. Extreme weather events can damage the capital stock of the economy, trigger shortages of commodities and other inputs into the production process, lead to a loss of hours worked and see a diversion of resources towards reconstruction and replacement.

Some economists play down the supply side effects based on the ‘creative destruction hypothesis’ or at least a ‘normalisation hypothesis’. This is based on the idea that the economy will eventually return or exceed its pre-disaster trend through a catch-up period of faster growth as capital is replaced. This is complemented by the idea that the marginal product of capital will rise when capital is destroyed. However, this may well underestimate impact of the diversion of resources away from more productive and innovative activities.

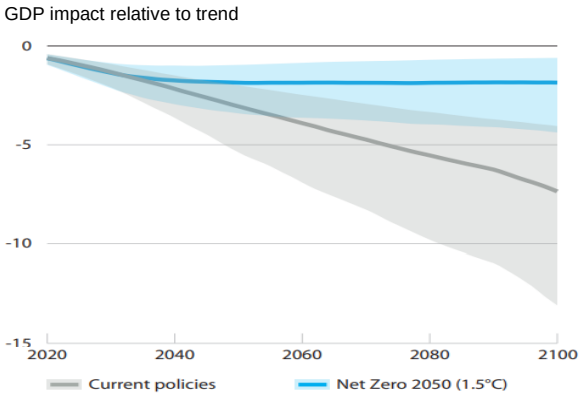
Perhaps more importantly, the benign view of the economic impact of any single extreme weather event likely underestimates the impact of an increased frequency of these events on the behaviour of consumers, companies and

financial institutions. In particular, increased uncertainty about the future can directly dampen demand, but also lead financial institutions to price in higher risk premiums in to their products, leading to higher costs and tighter financial conditions.

Physical risks are likely underestimated

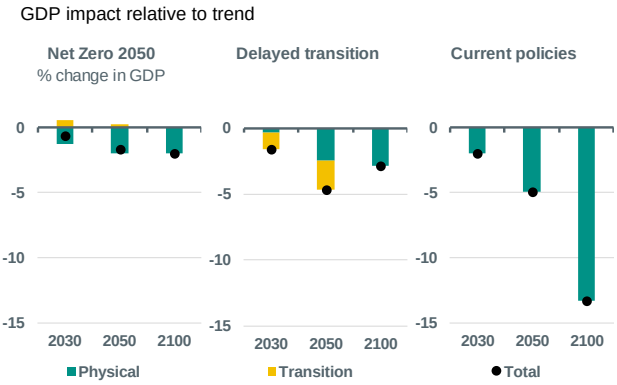
Well-known macroeconomic estimates of the physical risks from climate change are very likely to be underestimates. For instance, the Network for Greening the Financial System (NGFS) a group of central banks and supervisors, provides well-known and widely used climate and transition scenarios. These scenarios have been developed to provide a common starting point for analysing climate risks to the economy and financial system. In terms of physical risks, it is worth focusing on their 'Hot house world – current policies' scenario, which assumes that emissions continue to grow leading to 3°C+ of warming and severe physical risks.

Physical risk GDP losses



Source: NGFS, ABN AMRO Group Economics

Impact of different scenarios on economic outlook



Source: NGFS, ABN AMRO Group Economics

Under this scenario, their estimates suggest a global GDP impact of up to 13% relative to a prior trends baseline. Given this impact is cumulative up to 2100, and in the baseline the economy grows substantially over this period, the effects appear to be underwhelming. However, the NGFS notes that 'the methodology does not include impacts related to extreme weather, sea-level rise or wider societal impacts from migration or conflict'. This is an area for much further work, not only for the NGFS but for the economics profession.

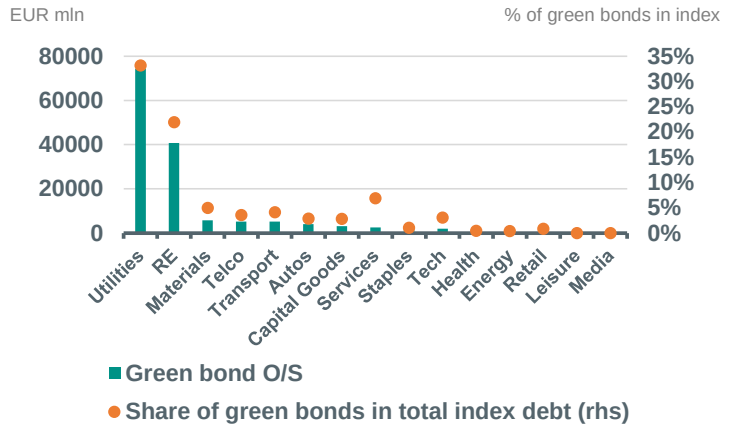
Pole position for Dutch residential real estate to reduce emissions

Shanawaz Bhimji, CFA – Senior Strategist | shanawaz.bhimji@nl.abnamro.com

- **Residential real estate bond issuers have been reporting on their portfolio emissions for a few years already**
- **German names show emissions on portfolio levels tied to building heat, while Dutch companies go beyond and also include the electricity use of their tenants**
- **We compare the German issuer emission intensities against Dutch issuer Vesteda**
- **Not only does Vesteda have lower emission intensity, it does so from a position of luxury given the low issuer debt levels**

Construction and operation of buildings accounts for 40% of global greenhouse gas emissions, which implies that the real estate sector should, like other carbon intensive sectors such as utilities/energy and materials, be very much the focus of ESG focussed investors. In response, real estate has become the second largest industry in the EUR IG space in terms of green bond issuance, bonds for which the proceeds are directed towards low- or free-carbon emission asset base. As also noted a couple of weeks ago (see **here**) the real estate sector is also well advanced in the allocation of proceeds towards eligible assets, which can potentially assist in reducing the real estate portfolio's carbon impact.

Real estate sector has prominence in green bond issuance

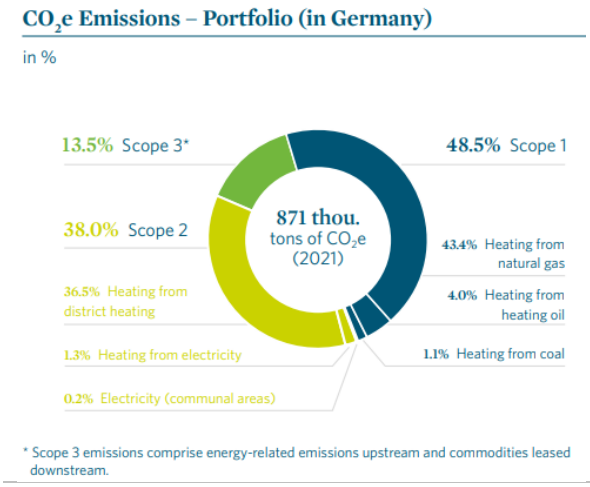


Source: ICE BofAML, Bloomberg, ABN AMRO Group Economics

Besides the progress made through the issuance of green bonds aimed towards improving the portfolio quality by investing in energy efficient properties, real estate issuers still have a huge legacy portfolio of carbon intensive assets and it could take many years before low to zero carbon ambitions become reality. In the meantime, real estate issuers are reporting on existing carbon emissions of their total portfolio, whether voluntary or mandatory because of non-financial reporting requirements. We take a look at how various residential real estate bond issuers report on their portfolio carbon emissions, specifically at the standardized metric of the intensity per square metre of property (as this allows for comparison between issuers).

Let's start with the biggest residential real estate issuer, namely German based **Vonovia**. At a portfolio level Vonovia includes energy intensity and the associated carbon emissions related to heating, which comes largely from natural gas (scope 1) or district heating channels (scope 2) as shown in the pie-chart taken from Vonovia's latest sustainability report (in the next page). Scope 3 emissions relate to property units where Vonovia does not exercise control.

Vonovia's CO2 emissions largely pertain to heat generation



Source: Vonovia 2021 sustainability report

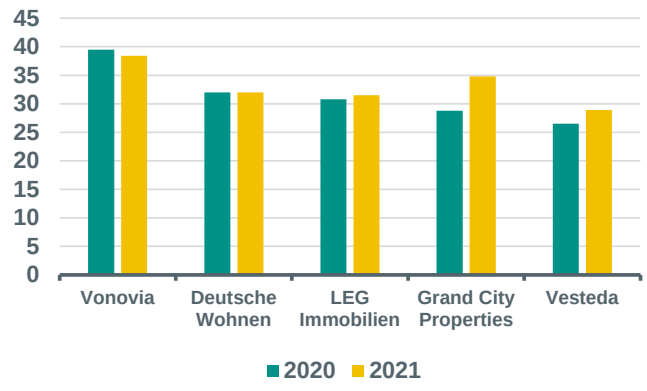
Vonovia also seems to be the only residential real estate issuer that discloses the energy demand of new constructions and how much energy they use going forward. Last year, Vonovia's new construction aimed to improve energy efficiency had a carbon content of 338.6 kg per square metre and the energy saving offered by this new construction to the average of Vonovia's portfolio would be nearly 75%. Still, the saving would suggest a carbon payback period of 12 years on new investments, which is a long period to fully recover the carbon spent during construction from future savings.

Looking at the other German residential real estate issuers, namely **Deutsche Wohnen** (where integration into Vonovia ESG data will likely take place next year), **LEG Immobilien** and **Grand City**, we see a similar approach as Vonovia's being applied, that is, only the inclusion of heat-related emissions at a portfolio level.

Dutch residential real estate issuer **Vesteda** on the other hand also reports on energy intensity and related carbon emissions tied to the electricity used by tenants and how much in terms of total energy usage per square meter this electricity represents. The chart below shows the published data per issuer for 2020 and 2021. Grand City did not explain why there was such a huge intensity increase. Vesteda argued that a higher share of working from home days in 2021 contributed to the rise. Vonovia attributed the improvement to progress made in portfolio energy efficiency quality.

Vonovia's CO2 emissions largely pertain to heat generation

Kg CO2 psqm pa



Source: Issuers sustainability reports, ABN AMRO Group Economics

But to achieve an 'apples to apples' comparison including Vesteda's different methodology for calculating carbon emissions per square meter, we purely take the emissions tied to heating in Vesteda's portfolio. Its 2021 gas energy intensity in the tenant areas was 10.5 cubic metre per square meter per annum (psqm pa). With one cubic metre of natural gas equalling to 9.77 kWh and an emission intensity of 0.2kg per kWh for natural gas, Vesteda's heat driven carbon intensity would be 20.6 kg psqm pa. This sits 46% below Vonovia's published emissions and 36% below the best German performer Deutsche Wohnen.

Issuer	CO2 kg per sqm pa*	Debt/(Debt +Equity)	FFO/Debt
Vesteda	20.6	25%	**9.5%**
Vonovia/Deutsche Wohnen	38.4	54%	**4.4%**
LEG Immobilien	32.3	43%	**6.9%**
Grand City Properties	34.8	44%	**5.0%**

Source: Issuers sustainability reports, Moody's, S&P, ABN AMRO Group Economics, Note: for Vesteda, only the heat related energy usage and carbon emission taken into consideration as this is what German issuers largely report about

The above table also shows that the picture for the Dutch issuer becomes even more interesting when you consider that Vesteda reports the lightest debt load of the pack. Vesteda applies a very conservative debt policy, hence the recent upgrade to A- credit rating applied by S&P, whilst this upgrade from previously BBB+ was initially held back because of the issuer's small size. The German issuers on the other hand have incurred huge debts over the past years in pursuit of acquisitions, specifically Vonovia ,and have limited headroom in their metrics commensurate to their credit rating. Hence, Vonovia depends more on government grants for its energy efficiency driven renovations (such as from KfW) and has flagged that it also relies a lot on the change in the German energy mix to renewable sources in order to meet its ambition to have a (near) carbon neutral portfolio by 2045. This change in energy mix to become entirely carbon neutral would apply to Vesteda as well, given the maximum amount of energy efficiency renovation you can reasonably apply. But Vesteda is clearly in pole position and it could take Vonovia at least until the early part of the next decade to reduce emissions to Vesteda's existing levels.

Corporates take advantage of the ESG label to issue bonds in volatile markets

Shanawaz Bhimji, CFA – Senior Strategist | shanawaz.bhimji@nl.abnamro.com
Larissa de Barros Fritz – ESG & Corporates Strategist | larissa.de.barros.fritz@nl.abnamro.com
Joost Beaumont – Senior Fixed Income Strategist | joost.beaumont@nl.abnamro.com

- **ASML came to the market last week with a debut green bond**
- **We do not see a reason why there shouldn't be a greenium in ASML's new green bond, given this is the case for other peers such as Apple**
- **Orange issued its second sustainability bond, which was more than 6x oversubscribed**
- **NN Bank issued the first green covered bond from a Dutch financial institution**

ASML issues inaugural green bond

Cash rich Dutch semiconductor equipment company ASML Holding NV (ASML) surprised the market with an inaugural green bond offering on Tuesday last week. It is the first green bond in the EUR denominated space from a semiconductor company, although the EUR denominated semiconductor bond space is by itself limited to ASML (equipment maker) and Infineon (chip maker). For the issuer it was a curve extension by 1y and it had no problems attracting a big crowd of investors despite undertaking no effort to market this inaugural green bond.

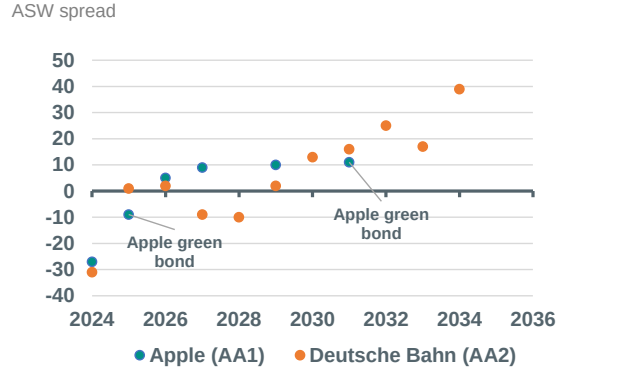
Proceeds from the debut green bond will be used towards funding existing and new company green real estate. The eligibility criteria aligns to the extent possible with the EU taxonomy, although ASML included as eligible as well buildings that have received a sustainable buildings certification, such as BREEAM, LEED and G-SEED, which is *per se* not a criteria in the EU Taxonomy. The company has not yet disclosed how much of their existing real estate assets would already be eligible, but given the issuer's target to achieve net zero scope 1 & 2 emissions by 2025 we foresee that the issuer will find ample eligible assets well before the bond maturity date in 2032. This would actually be out of line with our recent findings that technology companies generally seem to struggle the most to allocate proceeds of ESG bonds (see **here**).

Apple bond shows existence of technology greeniums

Apple seems to be the only technology company in the EUR denominated space that has issued green bonds. The 2025 Apple green bond has the purest comparison as Apple also has a non-green 2025 bond outstanding. The difference in spread between the two bonds tends to be mixed, as shown on the left hand chart of the next page. Hence, this maturity shows no clear greenium.

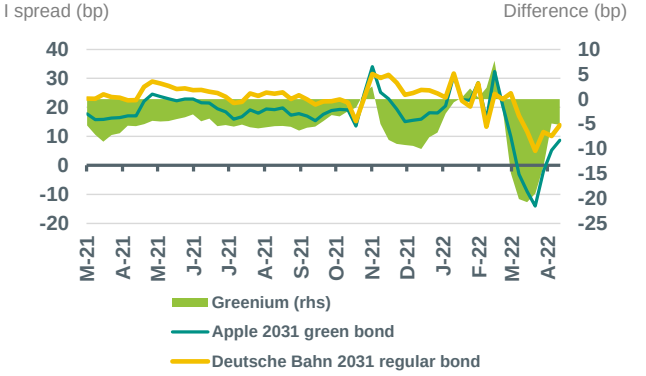
But in the longer 2031 Apple green bonds we do see a greenium materializing. There is no conventional Apple 2031 bond, yet Apple is a very highly rated name and the universe of issuers is relatively small, which would make pricing between issuers from different industries a bear necessity. First we compare the Apple curve (Apple has a AA1 composite rating) against the Deutsche Bahn curve (Deutsche Bahn has a AA2 composite rating). Deutsche Bahn does not have green bonds outstanding. Despite Apple's slightly better credit profile we see that Deutsche Bahn credit spreads trade tighter levels than Apple in all intermediate and long maturities except for the 2025 and 2031, which is exactly the maturity of the Apple green bonds. Presumably the tighter Deutsche Bahn spreads are driven by the fact that the issuer is CSPP eligible, but the fact that only the Apple green bonds break this trend is likely indicative of investors' preference for Apple green bonds. Furthermore, the greenium between the Apple 2031 green and Deutsche Bahn 2031 regular bonds tends to be more sticky at -3bp on average since issuance in 2019 (not persistently though!).

Deutsche Bahn spreads trade inside Apple, except for the green bond maturities



Source: Bloomberg, ABN AMRO Group Economics, x-axis = maturity

Apple greenium to Deutsche Bahn is stickier



Source: Bloomberg, ABN AMRO Group Economics

Finally, we also had a look at the curve steepness from the 2028 maturity in better rated technology name Microsoft (AAA). Although absolute spread levels remain lower than in the case of Apple, a curve extension between 2028 and 2033 in Microsoft will command 8bp of pick-up. In the case of Apple, the curve remains flat between the 2029 regular bond and the 2031 green bond.

Hence, we think that a greenium seems to be prevalent in the longer end of Apple's curve. While Apple's use of proceeds seem to be more elaborate than ASML, including spending proceeds on low carbon design and engineering, we presume that green bond investors will appreciate the more clear cut spending as proposed by ASML on real estate and the fact that unlike Apple, ASML will be more proficient in allocating the green bond proceeds (in Apple's case there is only a 25% allocation since issuance date).

Orange returns to the Sustainability bond after a debut in 2020

The French Telco Orange returned to the Sustainability market last week for a second sustainability bond issuance. The company placed a EUR 500m bond to finance projects that fully reflect the Group's ambitions in both the green and social fields. This brings the total YTD ESG issuances from the company to EUR 1bn. The bond was more than 6x oversubscribed, likely due to a combination of Orange's relatively strong credit profile (rated Baa1 by Moody's) in a stable sector that is relatively immune to current global headwinds, and also the ESG label of the instrument. Corresponding to the solid demand, the company only paid around 5bps NIP, while its secondary curve widened up to +6 bps.

The proceeds of the new sustainability bond will be used towards eligible green and social assets as specified in the company's Framework (see **here**). This includes investments towards accelerating the deployment of optic fibre and mobile networks in areas at risk of digital exclusion, expenditures that support social integration and/or entrepreneurship, smarter networks with greater energy efficiency, eco-efficient data centres, investments in the development, construction and upgrade of facilities, equipment or systems that generate or transmit renewable energy, amongst others. We note that Orange's Framework does not include an assessment and/or mapping towards the EU Taxonomy (for its green categories). There was also not a disclosure from the company whether an updated version of the Framework will be released soon.

While the exact expenditures to which the proceeds of this new sustainability bond will be directed to are not disclosed by the company, the company has also already disclosed that the proceeds of this new bond will be invested in the same categories as the inaugural bond (see more below), with allocation being a 50/50 split among green and social categories.

According to Orange's allocation report published in 2021, the company has managed to allocate already 51% of the EUR 500m of its inaugural sustainability bond within the first year of issuance. From the EUR 328m allocated, 37% was dedicated to social projects, while 63% to green projects. Within social categories, EUR 74m was invested in the category of digital inclusion and EUR 48m in the category of social inclusion. The latter relates to investments through its vehicle Orange Ventures, which provides financial support to start-ups, which is amongst the top 10 corporate venture capital funds in

Europe. For digital inclusion, Orange has invested in the deployment of high-speed broadband (FTHH) in rural areas in France. Within the green categories, EUR 127m was invested in the radio access networks (RAN) sharing in Poland (this aims to optime energy consumption of mobile access networks) and EUR 79m in equipment refurbishments in France. Also noteworthy is that Orange discloses that the unallocated proceeds (EUR 172m) are invested in money market Socially Responsible Investment funds. None of the investments considered for the allocation of proceeds date before 2019.

Orange has a strategic plan named "Engage 2025" where social and green KPIs have been set. The company is also rated AA by MSCI and 17.4 (low risk) by Sustainalytics. It ranks as 16th within its industry (225 companies), placing the company within the 8th percentile. According to Sustainalytics, corporate governance around for example anti-competitive practices, labour relations as well as board remuneration, remains the biggest ESG challenge for the company.

Dutch covered bond market set new milestone with first green covered bond

The Dutch covered bond market reached a new milestone last week, as NN Bank issued the first Dutch green covered bond. The deal followed some green and social covered bonds issuance in previous weeks and added evidence that an ESG format does provide a benefit for issuers in turbulent times. Indeed, NN Bank sold its inaugural EUR 500m 10y green covered bond at MS +7bp, which was roughly flat to its existing curve. This compared to other issuers paying on average almost 4bp of new issue premiums last week. The favourable pricing reflected strong demand for the green deal, as the book size reached EUR 2.2bn. This translated into a 4.4x bid-to-cover ratio, which was more than double last week's average bid-to-cover ratio of newly issued covered bonds. As such, the debut deal was a success, with media reports also indicating that NN Bank saw many new investors participating in the deal, which fits with the general view that ESG covered bonds attract a broader investor base.

The green bond framework (**here**) shows that the proceeds of the bonds will be used to (re)finance green buildings that meet eligibility criteria, which means that they have an Energy Performance Label A and that they belong to the top 15% low-carbon residential buildings in the Netherlands. Buildings built from 1 January 2021 need to have a primary energy demand at least 10% lower than the local Nearly Zero Energy Buildings (NZEB). Furthermore, refurbished buildings that have at least a 30% improvement in energy efficiency are also eligible, as well as some individual measures aimed at improving the energy efficiency and the installation of renewables on-site in residential buildings (e.g. solar panels, heat pumps). Finally, the investor presentation (**here**) shows that the framework follows best practices, such as developments related to the EU Taxonomy.

NN Bank has identified EUR 4bn of eligible green residential mortgage loans (around 19.3% of total mortgage loans), of which EUR 1.5bn have been added to the cover pool. What is more the bank will ensure that for as long as green covered bonds are outstanding under the programme, the cover pool will comprise an equivalent amount of eligible green mortgage loans.

High amount of Dutch industrial waste is put to good use

Casper Burgering – Economic Transition Economist | casper.burgering@nl.abnamro.com

- **A circular economy is positive for further sustainable development and economic growth**
- **Dutch material productivity is the highest of all EU countries**
- **The Dutch government's goal of a 100% circular economy by 2050 is ambitious, but has the potential to yield great benefits for society and the economy**

In December 2015, the European Commission (EC) launched its first ever action plan for a Circular Economy (CE). The action plan had to ensure a faster transition in Europe towards more recycling and reuse, to the benefit of the environment. In particular, a circular economy helps to achieve climate neutrality by 2050 and to halt the loss of biodiversity. Moreover, it strengthens the economy through increased competitiveness, more sustainable economic growth and new jobs. Finally, the EU's transition to a circular economy will reduce pressure on and dependency on natural resource suppliers.

In March 2020, the EC adopted the new *Circular Economy Action Plan* (CEAP). The CEAP aims to ensure that resources circulate in the economy for as long as possible and includes a range of actions for businesses, governments and consumers. It is a revision of the first plan from 2015. In 2021 and 2022, the plan received many new additions. With this continuation on circular, the EC shows that it is an important part of Europe's agenda for sustainable growth. The Netherlands is ahead in circularity within Europe.

The usefulness of industrial waste

By keeping raw materials in the value chain as long as possible, companies can save energy and prevent irreversible damage to the earth. This is because recycling helps to reduce CO2 emissions. When, for example, iron ore is replaced by scrap from recycling in the production of steel, at least 59% of CO2 is saved. But the economy also benefits, through more jobs & growth, increased investments, a more effective climate & energy policy, more attention to the social agenda and/or an increase in the necessary industrial innovation.

Trend in useful usage of industrial waste by subsector (useful industrial waste vs. total industrial waste)

Source: CBS, ABN AMRO Group Economics

Within industry, it is almost business-as-usual to keep as many raw materials in the chain for as long as possible. Meanwhile, within the sector, an average of 91% of all industrial waste is given a useful application. Useful application in this context means the reuse of industrial waste in production processes, the (economic) use of industrial waste in a different function or the use of industrial waste as a foundation material for road surfacing or as a covering material in landfills. Useful application trends differ, however, within the subsectors of industry.

For example, the food & beverage industry, the base metal industry and the petroleum industry are very consistent over the years in giving a new purpose to industrial waste. Here the recycling of industrial waste is higher than the industry average. In these sectors, therefore, reuse is relatively easy to achieve. In other sectors, recycling is much more complex. This is often related to the complexity and composition of the end product. The degree of difficulty is higher in the chemical industry, the metal products industry and the textile, clothing & leather industry. The long-term average within these three sectors is relatively low. What is more, it is striking that within the chemical industry the useful reuse has been on a downward trend between the period 2008 and 2018.

In the building materials, paper and wood industries, useful recycling has also been fairly constant over the years and is around the industry average. Below that are the subsectors transport manufacturing, rubber & plastic products industry and machinery industry. In these three sectors, a clear upward trend has been evident since 2008.

Circular Netherlands

Statistics Netherlands (CBS) has calculated that Dutch waste production per capita has declined in recent years. Nevertheless, the country still ranks higher than the EU average. The Netherlands is in the top 5 when it comes to most waste production per capita. This in itself does not have to be a problem, as long as the waste is processed usefully. This is the case in the Netherlands. The Netherlands recycles relatively a lot of waste compared to the other countries within the EU. Of the 63 billion kilos of waste produced per year, 52 billion kilos go back into the economy. It also appears that the country’s material productivity is the highest of all EU countries. So, relatively speaking, the Netherlands is quite efficient with its raw materials.

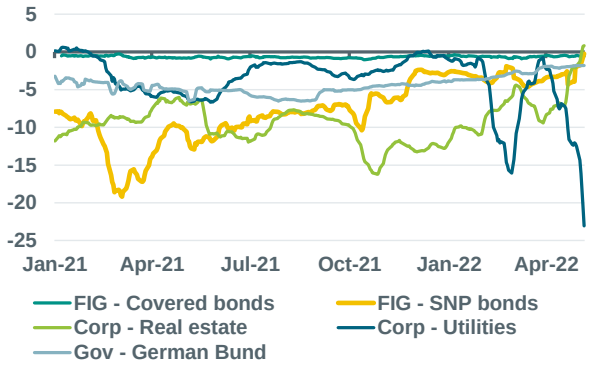
In March 2022 Statistics Netherlands published the online report **'Circular Economy and the Sustainable Development Goals**'. From this it can be concluded that a circular economy helps to achieve the climate objectives and that a circular economy also contributes quite substantially to the Sustainable Development Goals (SDG) of the United Nations. These are 17 sustainable development goals that serve as a basis for the global sustainable development agenda for 2030. CBS notes that a circular economy contributes particularly to the SDG goals related to energy, production, consumption and waste. But it also has common ground with the SDG goals, such as 'good health and well-being' and 'life on land'.

The ambition of the Dutch government to have a 100% circular economy by 2050 is ambitious, but has the potential to yield great benefits for society and the economy. Many of the raw materials that are consumed and processed - particularly those that are badly needed for energy transition - are becoming increasingly scarce and therefore more expensive. So if the use of raw materials can be made even more efficient and effective, that will reduce the costs for companies and the negative environmental impact on society.

ESG in figures

ABN AMRO Secondary Greenium Indicator

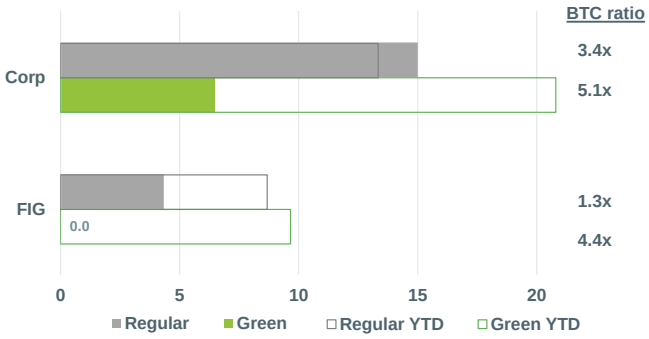
Delta (green I-spread – regular I-spread)



Note: Secondary Greenium indicator for Corp and FIG considers at least five pairs of bonds from the same issuer and same maturity year (except for Corp real estate, where only 3 pairs were identified). German Bund takes into account the 2030s and 2031s green and regular bonds. Delta refers to the 5-day moving average between green and regular I-spread. Source: Bloomberg, ABN AMRO Group Economics

ABN AMRO Weekly Primary Greenium Indicator

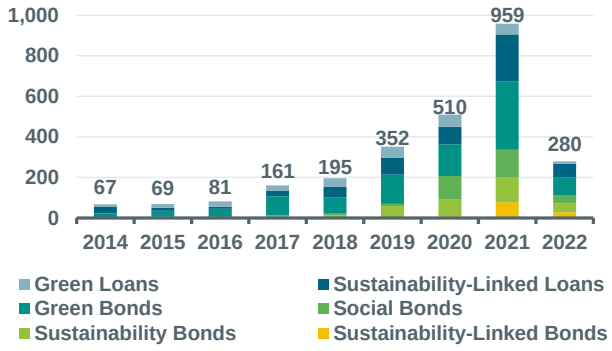
NIP in bps



Note: Data until 12-5-22. BTC = Bid-to-cover orderbook ratio. Source: Bloomberg, ABN AMRO Group Economics.

Sustainable debt market overview

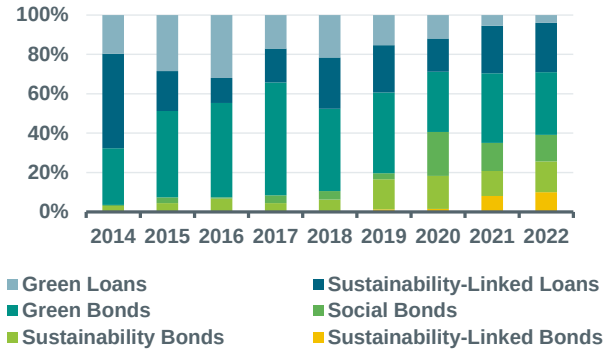
EUR bn



Source: Bloomberg, ABN AMRO Group Economics

Breakdown of sustainable debt by type

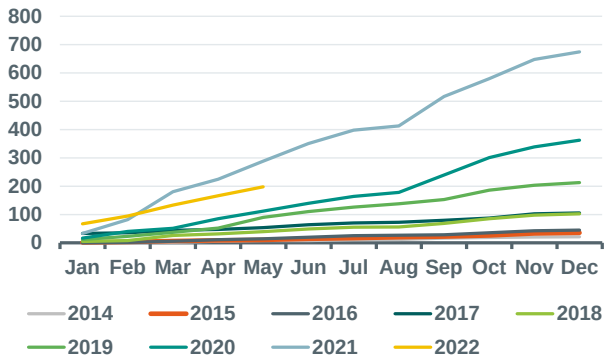
% of total



Source: Bloomberg, ABN AMRO Group Economics

YTD ESG bond issuance

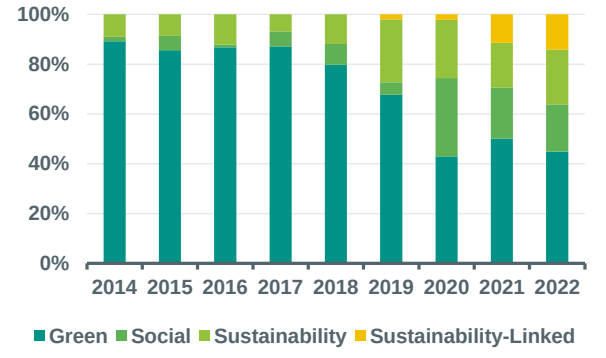
EUR bn



Source: Bloomberg, ABN AMRO Group Economics

Breakdown of ESG bond issuance by type

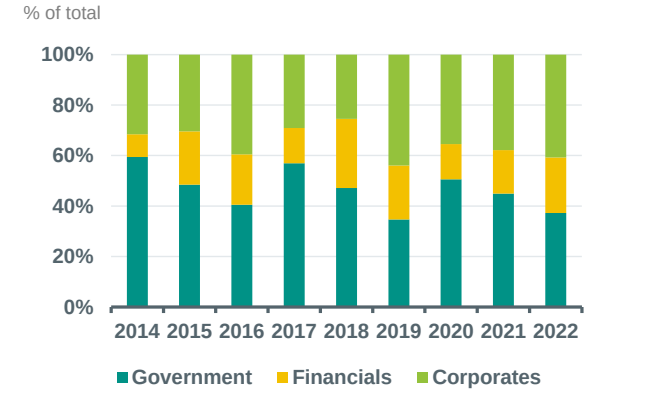
% of total



Source: Bloomberg, ABN AMRO Group Economics

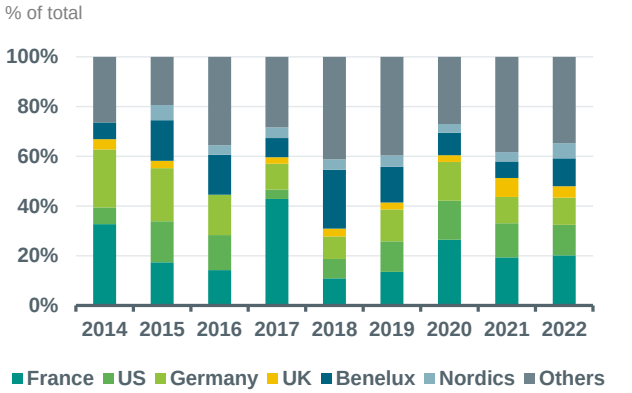
Figures hereby presented take into account only issuances larger than EUR 250m and in the following currencies: EUR, USD and GBP.

Breakdown of ESG bond issuance by sector



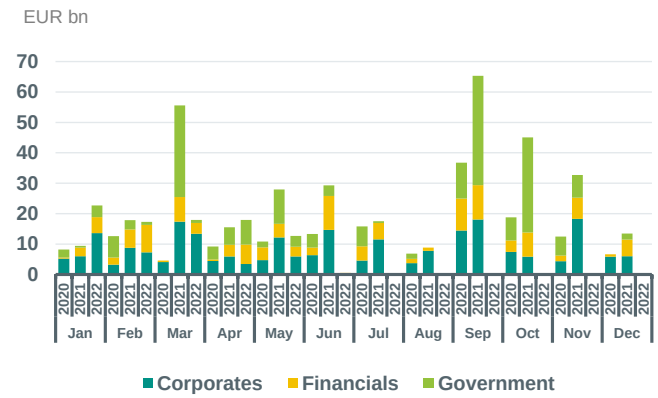
Source: Bloomberg, ABN AMRO Group Economics

Breakdown of ESG bond issuance by country



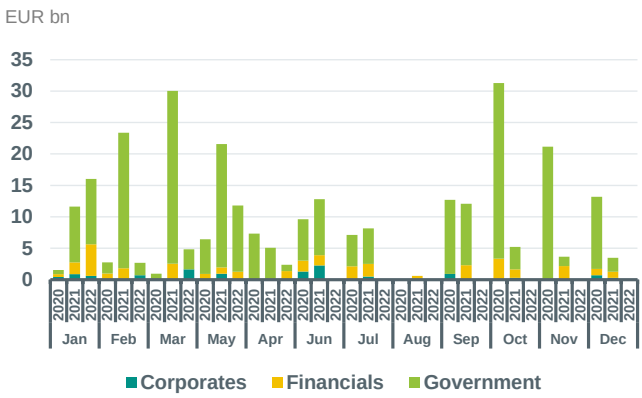
Source: Bloomberg, ABN AMRO Group Economics

Monthly Green Bonds issuance by sector



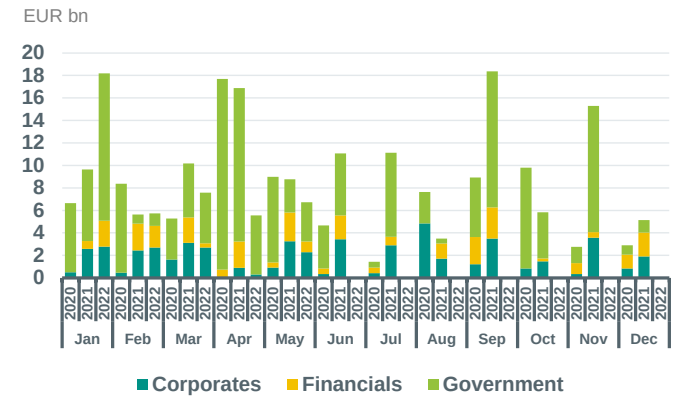
Source: Bloomberg, ABN AMRO Group Economics

Monthly Social Bonds issuance by sector



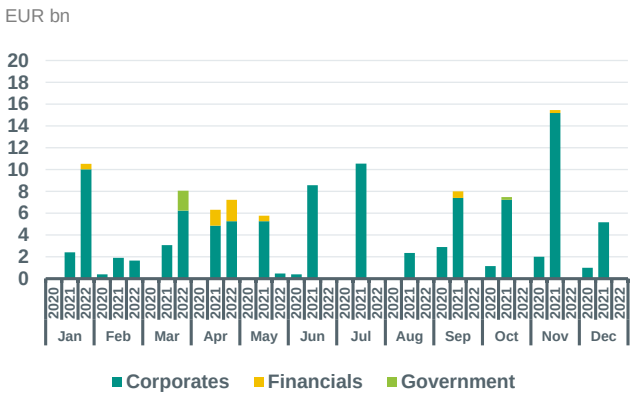
Source: Bloomberg, ABN AMRO Group Economics

Monthly Sustainability Bonds issuance by sector



Source: Bloomberg, ABN AMRO Group Economics

Monthly Sust.-Linked Bonds issuance by sector



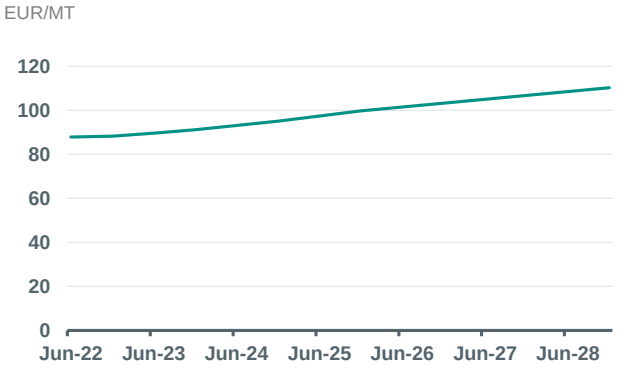
Source: Bloomberg, ABN AMRO Group Economics

Figures hereby presented take into account only issuances larger than EUR 250m and in the following currencies: EUR, USD and GBP.

Carbon contract current prices (EU Allowance)

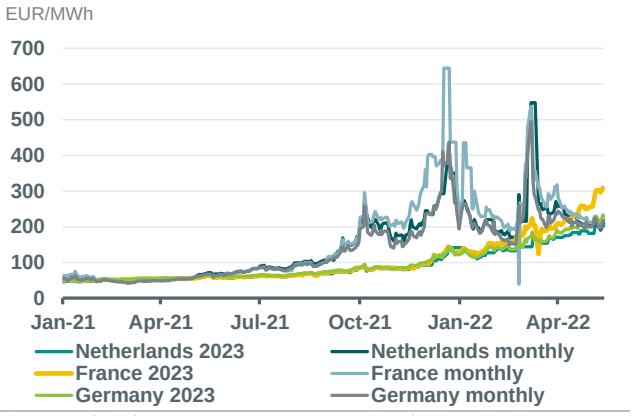
Source: Bloomberg, ABN AMRO Group Economics

Carbon contract future prices (EU Allowance)



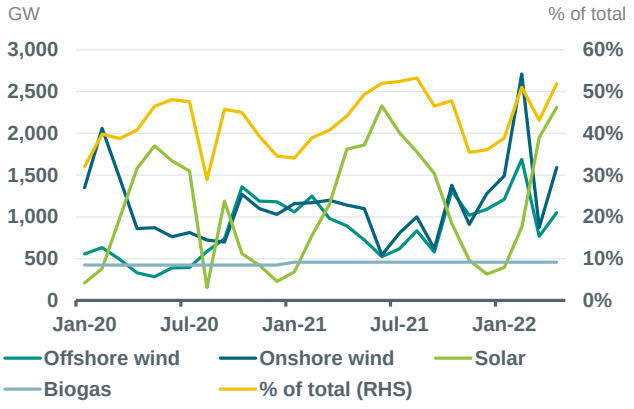
Source: Bloomberg, ABN AMRO Group Economics

Electricity power prices (monthly & cal+1 contracts)



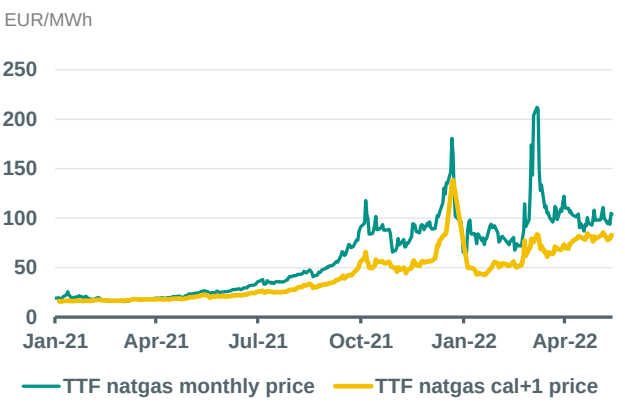
Source: Bloomberg, ABN AMRO Group Economics. Note: 2023 contracts refer to cal+1

Electricity generation from renewable sources (NL)



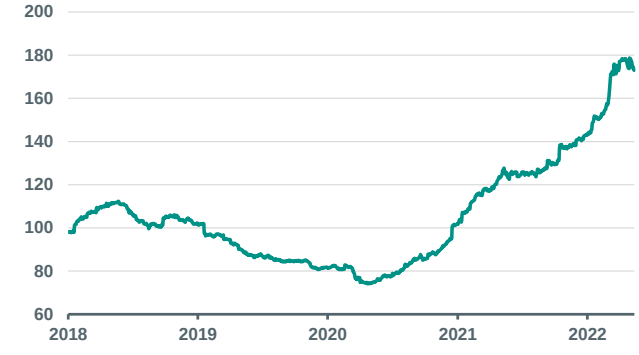
Source: Energieopwek (Klimaat-akkoord), ABN AMRO Group Economics

TTF Natgas prices



Source: Bloomberg, ABN AMRO Group Economics

Transition Commodities Price Index



Note: Average price trend of 'transition' commodities, such as: corn, sugar, aluminium, copper, nickel, zinc, cobalt, lead, lithium, manganese, gallium, indium, tellurium, steel, steel scrap, chromium, vanadium, molybdenum, silver and titanium. Source: Refinitiv, ABN AMRO Group Economics

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ABN AMRO Bank
Gustav Mahlerlaan 10 (visiting address)
P.O. Box 283
1000 EA Amsterdam
The Netherlands

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