

# SustainaWeekly

## The decoupling of emissions and economic growth

- ▶ **Economist:** Many developed economies in particular have now achieved a strong decoupling between GDP growth and growth in CO2 emissions. Many emerging and developing economies have not yet achieved decoupling demonstrating that the stage of economic development plays a key role. This reflects the amount of resources available for green investment, available technologies and the share of industry in the economy.
- ▶ **Strategist:** The ASCOR project provides various metrics that assess climate change risks and opportunities at a sovereign level. The tool aims to provide a comprehensive and freely available framework that investors and issuers can use as a common standard. This framework can be a compliment to other frameworks, such as ESG country scoring and the use of proceeds tool of the Climate Bond initiative.
- ▶ **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, our first note examines the relationship between the trend in CO2 emissions and the economic developments of countries and regions. While many people believe that 'de-growth' the economy is necessary to meet CO2 reduction targets, others believe that improving living standards in an economic sense can be consistent with decarbonisation. To gain a better understanding about this crucial relationship we use historical data for GDP growth and the trend in CO2 emissions and map this out using the so-called 'Tapio decoupling model'. We find that many developed economies have now achieved a strong decoupling between GDP growth and the growth in CO2 emissions, but many emerging and developing economies have not, demonstrating that the stage of economic development plays a key role. This underscores the political and economic challenges that many of these countries face in making the transition and highlights the case made at COP for climate solidarity. We go on to explore the rise of a new sovereign ESG framework in the shape of the ASCOR project. The tool aims to provide a comprehensive and freely available framework that investors and issuers can use as a common standard. It looks like it will be a welcome addition to the tool set that can be used to assess sovereign risk from a climate perspective.

Enjoy the read and, as always, let us know if you have any feedback!

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## Economic growth and sustainability can go hand-in-hand

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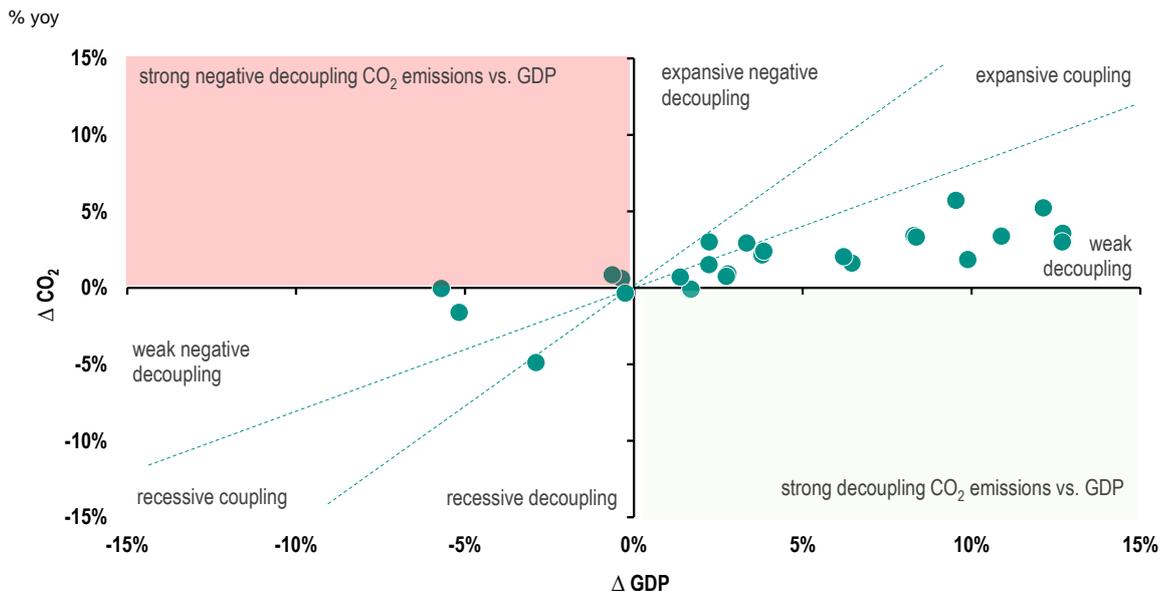
- ▶ Reducing carbon emissions can go hand-in-hand with economic growth
- ▶ Many developed economies in particular have now achieved a strong decoupling between GDP growth and growth in CO2 emissions
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While many people believe that ‘de-growing’ the economy is necessary to meet CO2 reduction targets, others believe that improving living standards in an economic sense can be consistent with decarbonisation. It remains an interesting discussion, with plausible reasoning being offered from the two different sides. In this analysis, we further examine the relationship between the trend in CO2 emissions and the economic developments of countries and regions. It shows that a decoupling of economic growth and CO2 emissions is more common in developed economies.

### Decoupling

The arguments from the two aforementioned camps is in most instances clear and follows a credible line. For example, the ‘de-growers’ want to prioritize climate change by consuming much less. On balance, by reducing consumption strongly, we use less energy and resources. This gives sustainable development a stronger boost, which is good for our well-being in general. The ‘growers’, on the other hand, see an increase in prosperity as a prerequisite for sustainability and tackling climate change. They argue that only stronger economic development and an increase in prosperity will enable countries to invest in low-carbon innovation and technologies to become more sustainable at a faster pace. In addition, continued expansion is possible by changing the way we produce and by increasing our energy efficiency. It is often added that ‘de-growth’ for the sake of climate is undesirable because it increases the likelihood of social unrest in a society. To gain a better understanding about the relationship between GDP growth and the trend in CO2 emissions, we use historical data for the period 1995-2021 and a model that provides more insight into the matter.

Relationship global CO2 emissions and global value added (with the Tapio decoupling model)



Source: OurWorldinData, World Bank, ABN AMRO Group Economics; Tapio decoupling model via Ya Wu & Bin Xu (in *Energy Reports*, November 2022; research paper: ‘When will China’s carbon emissions peak? Evidence from judgment criteria and emissions reduction paths’)

Note: CO2 emissions data in this analysis is from OurWorldinData; these have been adjusted for imports and exports.

Decoupling occurs once there is a clear trend, for example, where continued growth in the economy is accompanied by a further contraction in CO<sub>2</sub> emissions. Then decoupling can be called 'strong'. It can all be mapped with the so-called 'Tapio decoupling model' (from Energy Report, November 2022). The model is shown in the figure below, using GDP and CO<sub>2</sub> data on a global basis.

#### **Interpretation of the matrix:**

From the position of the dots in the matrix, it can be seen that global **strong decoupling** of GDP growth and CO<sub>2</sub> emissions (light green area, bottom right of the figure) has not occurred on a large scale. Decoupling occurs once economic growth is accompanied by a decline in CO<sub>2</sub> emissions over a period of time. When there is a contraction of GDP together with a growth in CO<sub>2</sub> emissions, we are talking about a **strong negative decoupling** (light red area in the upper left corner of the figure). However, such a situation has been rare over the past 27 years, globally. Each of the remaining two areas (bottom left and top right) are each divided into three parts. In a **recessive decoupling**, both GDP and CO<sub>2</sub> emissions decrease, but the growth rate of emissions decreases by more than 20% relative to the economic growth rate. Then the so-called decoupling index is greater than 1.2. In the situation of **expansive negative decoupling**, the decoupling index is also greater than 1.2, but then emissions increase faster (by more than 20% relative to GDP). In the case of further coupling between emissions and GDP, the decoupling index is between 0.8 and 1.2. When the linkage is **expansive**, the growth rate of CO<sub>2</sub> emissions falls within a range of 20% below the economic growth rate and a maximum of 20% above it. Once the linkage is **recessive**, both GDP and CO<sub>2</sub> emissions decrease, but CO<sub>2</sub> emissions growth falls within an interval of 20% below the economic growth rate to 20% above it. Finally, we have the categories '**weak decoupling**' and '**expansive negative decoupling**'. In the latter category, CO<sub>2</sub> emissions increase by more than 20% relative to economic growth. And with weak decoupling, both GDP and CO<sub>2</sub> emissions increase, but the growth rate of emissions is at least 20% below the growth rate of GDP.

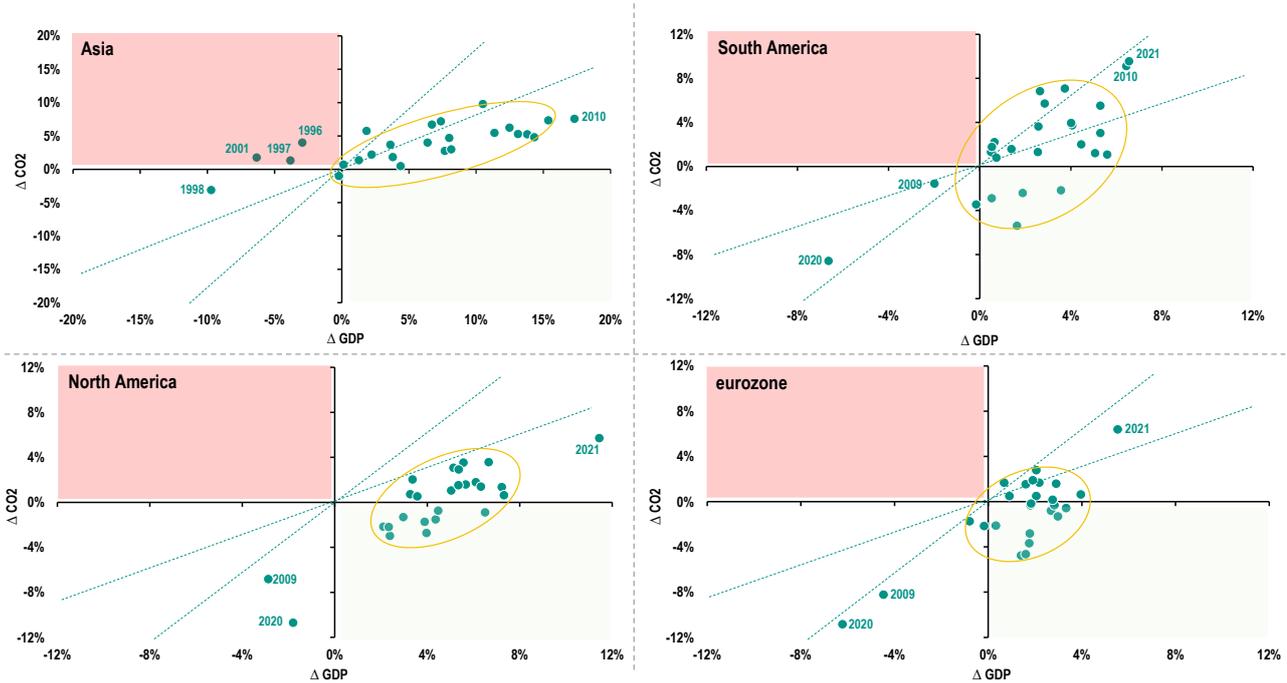
Breaking the negative link between CO<sub>2</sub> emissions and GDP growth altogether will be crucial to achieving climate goals. From a global perspective, a weak decoupling of GDP growth and growth in CO<sub>2</sub> emissions is apparent. Global GDP growth is accompanied by an increase in CO<sub>2</sub> emissions, but GDP growth exceeds CO<sub>2</sub> emissions growth. From this global perspective, this makes the 'de-growth' argument partly credible. After all, the decoupling between the two magnitudes is weak and this calls for an increase in energy efficiency to more strongly reduce CO<sub>2</sub> emissions. However, the global picture hides a lot of detail. In fact, the developments by region and in countries give a better insights. The variation between regions and countries is large. Further analysis shows that there are cases where economic growth does not go hand-in-hand with an increase in carbon emissions. Not only the efforts of companies and individuals play a key role here, but also government climate policies. If these policies aim to increase energy efficiency, promote low-carbon energy and/or techniques, and encourage behavioral changes, the result will be lower energy intensity and thus lower CO<sub>2</sub> emissions. However, this requires large investments, both public and private.

#### **Decoupling by region**

Many countries have committed to take measures to limit global warming, regardless of economic development level. However, some governments hesitate to take more ambitious measures to reduce CO<sub>2</sub> emissions faster if they have to bear the price of its economic loss, whether real or perceived. It stands in the way of a decoupling between the trends in CO<sub>2</sub> emissions and GDP growth. Countries with ambitious climate policies that focus much more on renewable energy deployment and sharp reductions in greenhouse gas emissions, for example, tend to show greater decoupling. But the degree of decoupling also depends heavily, for example, on the stage of economic development of countries. According to the *United Nations Intergovernmental Panel on Climate Change* (IPCC), countries are more likely to achieve decoupling of GDP growth and growth in CO<sub>2</sub> emissions at higher levels of economic development. This is because these countries have more resources to invest sufficiently in the transition to a low-carbon economy and shifted heavy industries abroad (see our [note on electricity](#)). Moreover, businesses in these countries have more and often earlier advanced options available for further improvements in production efficiency and other decarbonization measures. And finally, these advanced countries transformed their economies over time towards the more services oriented sectors, with a much lower energy intensive and emissions intensive economic activities. This has contributed to a faster reductions in CO<sub>2</sub> emissions.

## Decoupling CO2 emissions and value added to economic regions

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Source: OurWorldinData, Worldbank, ABN AMRO Group Economics; Tapio model after Ya Wu & Bin Xu (in *Energy Reports*, November 2022)

The difference in the degree of decoupling and the stage of economic development also emerges from our analysis. For example, a clear difference can be seen between different regions, such as Asia, South America (emerging economies) on the one hand, and North America and the eurozone (developed economies) on the other. China has indicated that peak CO2 emissions will be reached in 2030. India's peak emissions are also around that year. Both countries are still developing and have high economic growth numbers, which is associated with high and increasing greenhouse gas emissions. However, the figures also show that Asia is often also in the phase of weak decoupling. In this case, both GDP and CO2 emissions are growing, but the GDP growth rate is at least 20% higher than the growth rate of CO2 emissions.

Most countries in South America are also emerging economically and, as a result, an expansion of negative decoupling is still frequent. However, according to a November 2022 OECD report, South America is in a 'good position to begin an effective green transition and make faster progress toward its economic, social and environmental goals'. The region ranks relatively well on many sustainability indicators. For example, per capita emissions are lower than other regions with similar levels of development, and its energy mix is already greener today. Renewable energy sources represent 33% of its total energy supply, compared to 13% worldwide, according to the OECD.

Many countries in Europe have already decoupled CO2 emissions from GDP growth. The United Kingdom, France, Germany, the Netherlands, Sweden, Finland, Denmark, Italy, the Czech Republic and Romania are some examples where this process is observable. Outside Europe, the US is the largest country that has experienced several consecutive years in which economic growth has been largely decoupled from CO2 emissions growth.

### Decoupling index by regions and the Netherlands

decoupling index ( $\Delta\text{CO}_2/\Delta\text{GDP}$ )

legend:

	World $\Delta\text{CO}_2/\Delta\text{GDP}$	eurozone $\Delta\text{CO}_2/\Delta\text{GDP}$	Asia $\Delta\text{CO}_2/\Delta\text{GDP}$	N.-America $\Delta\text{CO}_2/\Delta\text{GDP}$	S.-America $\Delta\text{CO}_2/\Delta\text{GDP}$	Netherlands $\Delta\text{CO}_2/\Delta\text{GDP}$	index	trend in $\Delta\text{CO}_2$ & $\Delta\text{GDP}$
1996	1.3	1.3	-1.4	0.6	0.9	1.1	strong decoupling	< 0 ( $\Delta\text{CO}_2 < 0 - \Delta\text{GDP} > 0$ )
1997	-1.6	0.1	-0.3	0.3	1.0	-0.3	strong negative decoupling	< 0 ( $\Delta\text{CO}_2 > 0 - \Delta\text{GDP} < 0$ )
1998	1.4	0.6	0.3	0.2	2.6	0.1	strong decoupling	< 0 ( $\Delta\text{CO}_2 < 0 - \Delta\text{GDP} > 0$ )
1999	0.6	0.7	0.5	0.2	3.5	-0.7	strong decoupling	< 0 ( $\Delta\text{CO}_2 < 0 - \Delta\text{GDP} > 0$ )
2000	0.9	-0.1	0.6	0.5	-0.6	-0.1	weak decoupling	0 tot 0,8 ( $\Delta\text{CO}_2 > 0 - \Delta\text{GDP} > 0$ )
2001	-1.3	1.1	-0.3	-0.4	2.7	0.1	strong negative decoupling	0 tot 0,8 ( $\Delta\text{CO}_2 < 0 - \Delta\text{GDP} < 0$ )
2002	0.6	0.1	3.1	0.2	3.4	-0.2	strong decoupling	< 0 ( $\Delta\text{CO}_2 < 0 - \Delta\text{GDP} > 0$ )
2003	0.4	0.1	0.9	0.3	0.5	0.1	expansive coupling	0,8 tot 1,2 ( $\Delta\text{CO}_2 > 0 - \Delta\text{GDP} > 0$ )
2004	0.3	0.0	0.5	0.2	0.2	0.3	expansive coupling	0,8 tot 1,2 ( $\Delta\text{CO}_2 > 0 - \Delta\text{GDP} > 0$ )
2005	0.4	-0.1	1.0	0.1	1.0	-0.4	recessive coupling	0,8 tot 1,2 ( $\Delta\text{CO}_2 < 0 - \Delta\text{GDP} < 0$ )
2006	0.4	-0.1	1.0	-0.1	0.2	-0.5	recessive coupling	0,8 tot 1,2 ( $\Delta\text{CO}_2 < 0 - \Delta\text{GDP} < 0$ )
2007	0.2	-0.1	0.4	0.3	0.6	0.0	expansive negative decoupling	> 1,2 ( $\Delta\text{CO}_2 > 0 - \Delta\text{GDP} > 0$ )
2008	0.2	-0.2	0.4	-1.2	1.9	0.1	expansive negative decoupling	> 1,2 ( $\Delta\text{CO}_2 > 0 - \Delta\text{GDP} > 0$ )
2009	0.3	1.0	1.0	2.4	0.8	0.6	recessive decoupling	> 1,2 ( $\Delta\text{CO}_2 < 0 - \Delta\text{GDP} < 0$ )
2010	0.6	-1.2	0.4	0.6	1.4	2.1	strong decoupling	< 0 ( $\Delta\text{CO}_2 < 0 - \Delta\text{GDP} > 0$ )
2011	0.3	-0.5	0.5	-0.3	0.5	-3.1	strong decoupling	< 0 ( $\Delta\text{CO}_2 < 0 - \Delta\text{GDP} > 0$ )
2012	0.7	0.2	0.6	-0.7	1.4	-3.1	strong decoupling	< 0 ( $\Delta\text{CO}_2 < 0 - \Delta\text{GDP} > 0$ )
2013	0.3	-0.5	1.1	0.6	2.0	-0.3	strong decoupling	< 0 ( $\Delta\text{CO}_2 < 0 - \Delta\text{GDP} > 0$ )
2014	0.3	-2.0	0.5	0.2	1.1	-1.7	strong decoupling	< 0 ( $\Delta\text{CO}_2 < 0 - \Delta\text{GDP} > 0$ )
2015	0.0	-0.1	6.4	-1.0	-5.5	1.1	strong decoupling	< 0 ( $\Delta\text{CO}_2 < 0 - \Delta\text{GDP} > 0$ )
2016	-0.1	-0.1	0.1	-0.9	21.5	0.0	strong decoupling	< 0 ( $\Delta\text{CO}_2 < 0 - \Delta\text{GDP} > 0$ )
2017	0.2	0.0	0.4	-0.2	-1.3	-0.3	strong decoupling	< 0 ( $\Delta\text{CO}_2 < 0 - \Delta\text{GDP} > 0$ )
2018	0.3	-0.3	0.4	0.5	-3.3	-0.4	strong decoupling	< 0 ( $\Delta\text{CO}_2 < 0 - \Delta\text{GDP} > 0$ )
2019	0.5	2.3	1.0	-0.4	1.1	-0.1	strong decoupling	< 0 ( $\Delta\text{CO}_2 < 0 - \Delta\text{GDP} > 0$ )
2020	1.7	4.4	4.4	5.9	1.3	4.1	strong decoupling	< 0 ( $\Delta\text{CO}_2 < 0 - \Delta\text{GDP} > 0$ )
2021	0.4	0.6	0.3	0.5	1.5	0.3	strong decoupling	< 0 ( $\Delta\text{CO}_2 < 0 - \Delta\text{GDP} > 0$ )

Source: ABN AMRO Group Economics

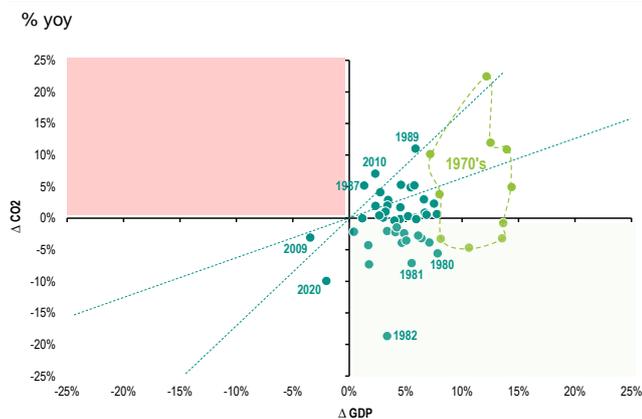
The table above shows that 'strong negative decoupling' (the darkest red areas) is more something of the past and, for now, only occurs during major economic shocks. In any case, this extreme situation has not been observed at the regional level since 2016. Of course, this situation can occur at the country level.

In any case, it is clearly visible from the table that during economic shocks or other external dismay (like a pandemic), the trend in the linkage between CO2 emissions and GDP is disturbed considerably. Around economic shocks the negative decoupling often increases, varying between strong, weak and expanding. We see this occurring during the 1997 Asian Financial Crisis, the 2000 Dotcom Crisis, the 2008-2009 Financial Crisis, and the milder crises in 2012 and 2016. In the Covid year 2020, it was especially recessive decoupling across all regions. Then both GDP and CO2 emissions declined firmly, but CO2 emissions declined much more sharply. The world was in lockdown, and this resulted in a strong decline in the movement of people and goods, causing CO2 emissions to fall more quickly.

### Decoupling in the Netherlands

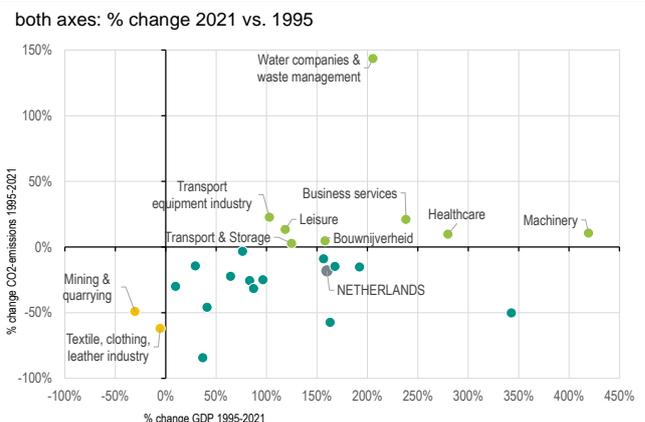
The decoupling of GDP growth and CO2 emissions growth is partly seen in the Netherlands as well, although here the variation in outcomes are sometimes much larger. In the left graph below, the dots are scattered across almost all areas of the matrix, except in the 'strong negative decoupling' area. The outliers in the Netherlands in the relationship between growth in CO2 emissions and GDP growth are particularly noticeable in the 1970s, but partly also in the 1980s.

#### Decoupling CO2 emissions and GDP Netherlands



Source: OurWorldinData, World bank, ABN AMRO Group Economics

#### Trend in CO2 emissions and GDP in sectors (1995-2021)



Source: CBS, ABN AMRO Group Economics

The general trend seen for the Netherlands run from weak decoupling to strong decoupling. However, in terms of emission reduction since 1990, the Netherlands compares worse than other EU countries. Compared to 1990, total greenhouse gas emissions in the Netherlands have fallen less than the EU average and almost all major economies in the eurozone. This underperformance has been linked to relatively slow progress towards renewables, and to some extent also because of large reliance on gas in the Netherlands. But over the past decade, the Netherlands has stepped up and performed better than the EU average.

In many sectors, CO2 emissions have declined since 1995, while their value added has grown. These are all dark green dots in the right-hand figure above. Almost two-thirds of the sectors are plotted there, with mostly industrial sectors, but also energy supply, retail and ICT-services sector. About eight sectors show a weak decoupling over time, with GDP growth exceeding growth in CO2 emissions. Finally, two sectors show both a decline in value added and emissions, where the decline in CO2 emissions has been sharper.

### **Maintaining economic growth is important for further sustainability**

This analysis shows that reducing carbon emissions need not necessarily be accompanied by a decrease in economic growth. Decarbonization of an economy can be well achieved by improving energy efficiency and reducing carbon intensity. To this end, companies in sectors have various measures and techniques available to decarbonise, with many low-hanging fruit ([see here](#)). However, there is no one standard success formula, no common climate policy or other typical solution that leads to stronger decoupling. Some countries have an ambitious and strict climate policies, which accelerates decoupling, while other countries have managed to increase both private and public investment sharply in renewable energy.

In any case, our analysis shows that limiting CO2 emissions can go well hand-in-hand with maintaining economic growth. The data show that many countries have achieved a strong decoupling, with CO2 emissions decreasing and the economy growing. The results thus offer a strong argument that economic growth is an important and perhaps crucial condition for further sustainable development. However, it does not take away from the fact that a strong rationalization of our consumption behaviour for further sustainable development is eminently a good way to contribute to our goal of a stronger reduction of CO2 emissions towards 2030 and 2050.

Finally, it remains a complex story for developing and also emerging countries to achieve strong decoupling. As long as this does not happen, then it may eventually become a major threat to global warming mitigation. Many of these countries (especially developing countries) may not have the resources to invest in a low-carbon economy. The investment gap of these countries is much larger than for advanced economies. In the end, this relates strongly to the need for climate solidarity.

## The rise of a new sovereign ESG framework

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- ▶ **Sovereigns are making their way to greener investments and expanding their ESG financing**
- ▶ **ESG data started to develop and extend to various metrics but is not always timely or accurate, and may involve bias, particularly in the sovereign space**
- ▶ **Using an internationally agreed framework could help both investors and issuers on this topic**
- ▶ **The ASCOR project is a first step in that direction and aims to fill this gap by providing various metrics that assess climate change risks and opportunities at a sovereign level**
- ▶ **This tool aims to provide a comprehensive and freely available framework that investors and issuers can use as a common standard instead of relying on multiple different climate databases**

In a previous publication (see [here](#)) we shed some light on the gaps and drawbacks of current sovereign ESG scores. The most important drawbacks we found were the lack of transparency, data accessibility and availability on the environmental front, income bias, and a backward-looking approach. ESG frameworks have started to emerge already on a corporate level with the most widely used one being the Climate Action 100+ Benchmark (see [here](#)), but are still lagging on the sovereign space. The ASCOR project aims to adopt a similar approach on a sovereign level. The ASCOR, which stands for 'Assessing Sovereign Climate-Related Opportunities and Risks', is a project led by asset owners, asset managers, and investor networks to fill this gap and develop a publicly available, independent tool to assess countries on climate change. Indeed, even if ESG country scoring frameworks discussed in our previous note served as a first step to help investors in their investment decisions, this type of framework remains incomplete, and used alone could also lead to missed opportunities or worse, incurring higher (climate) risks than initially assessed in sovereign bond investments. As such, we judge that a proper sovereign ESG framework should consider additional indicators such as the country's future trajectory, engagement, and financing capabilities to attain its climate goals which is what the ASCOR project attempts to do. In this piece, we will discuss this new sovereign ESG framework, the issues it addresses and solutions offered, and how it could be used as a (complementary) tool for current and prospective ESG investors.

### First step toward an internationally recognized sovereign climate-risk framework

ASCOR published on the 7<sup>th</sup> of February a consultation report (see [here](#)) to introduce the project and outline the upcoming framework to assess sovereign bond issuers on climate change with the aim of gathering initial feedback. The goal of this project is to set up an internationally agreed framework to assess the climate-related risks and investment opportunities on a sovereign debt level. Indeed, as highlighted in our previous publications, the lack of data transparency and availability as well as a consistent framework to rely on, made the task particularly difficult for investors, institutions, and sovereign issuers themselves to properly invest and act on the green side of sovereign debt instruments. The end goal of this project would be to set an internationally recognized sovereign standard instead of using multiple different sources to assess sovereign ESG performance.

As such, a global coalition of asset owners and managers supported by international investor networks worked together in 2021<sup>1</sup> to create the ASCOR project to remedy some of those issues. The aim is for a country to be assessed against a framework that will analyse emission pathways, climate policy action, and opportunities to finance the transition. Furthermore, this framework will also be made freely available in an open-source online tool, which will already help on the transparency and data accessibility front. Important to note that this new tool is not meant to serve as a sovereign ESG scoring framework but rather a complementary tool to support investors' decision-making process towards greener investments. ASCOR will launch this free online tool by the end of the year as well as publish the assessment of 25 countries (including some European countries like France, Germany, and Italy).

The framework is composed of three pillars, which we briefly discuss below and assess whether those indicators tackle our previously discussed drawbacks from current sovereign ESG frameworks.

<sup>1</sup> Members of the ASCOR Steering Committee are: the UN-convened Net-Zero Asset Owner Alliance, (AOA); Ceres; the Institutional Investors Group on Climate Change, (IIGCC); the Principles for Responsible Investment, (PRI) and SURA Asset Management.

**Overview of the ASCOR framework**

Performance of countries on managing climate change		Financing countries' climate risks and opportunities
<b>Pillar 1: Emission pathways (EP)</b>	<b>Pillar 2: Climate policies (CP)</b>	<b>Pillar 3: Opportunities to finance the transition (OFT)</b>
EP 1: Emission trends	CP 1: Mitigation	OFT 1: Financing to mitigate
EP 2: 2030 targets	CP 2: Adaptation	OFT 2: Financing to adapt
EP 3: Net zero targets	CP 3: Just transition	OFT 3: Financing to harness opportunities

Source: ASCOR consultation report

Each pillar is divided into sub-themes, for each of which a set of indicators are defined. To keep it simple, ASCOR set out Yes/No questions for most indicators (see report for further details on the methodology).

**1) Pillar 1: Emissions pathways (EP)**

This pillar considers historical emissions trends and the alignment of forward-looking national emission reduction targets with international climate goals. In this pillar, historical emissions developments are analysed on five-year trends in absolute emissions and assess the annual rate of this trend against the emission reduction rate needed for the country to meet its 2030 target. The framework will assess whether the ambitions set by the country are sufficient to align with the 2030 emission reduction target from the Paris agreement as well as the global net zero target for 2050. In our view, this would serve as a critical metric for ESG investors as many countries issuing ESG bonds have not even adopted net-zero targets and/or decarbonization plans at the national level. A lot of the criticisms from the greenwashing detractors for instance were the lack of high ambitions on the climate front from most sovereign issuers. Thus, this pillar could help reconcile both issuers and investors by providing a clearer picture of a country's climate ambitions and its capabilities and efforts put in place to meet them. However, as we will discuss in the third pillar below, we are still missing the analysis regarding the sovereign's ESG bond's use of proceeds and how this aligns with the country's net-zero targets.

Two of our ESG measuring issues are addressed in this first pillar. One refers to the integration of a more forward-looking approach in assessing a country's climate performance. Indeed, we observed that in many ESG rating methodologies, a more backward-looking approach was taken, which gave limited information about the country's progress toward reaching its net-zero targets. In this pillar, the *20230 targets* and *net zero targets* themes are both meant to provide a degree of alignment with the national 1.5°C target and whether the climate targets and policies put in place are sufficient to meet those. One of the metrics used will be the scenarios model from Climate Analytics, which will serve as a benchmark to evaluate whether a country's Nationally Determined Contributions (NDC) are sufficiently ambitious to meet the 2030 targets. A second issue tackled in this pillar is income bias. We identified a significantly high correlation between a country's credit rating and a country's ESG score. In our view, this could lead to biased investment decisions skewed towards richer countries while saying little about the actual country's environmental performance and effort made to reduce its carbon emissions.

Looking at the new EPI index report for 2022, we see that a focus skewed to a country's environmental performance gives a different picture in terms of ranking than a country's S&P rating or even its overall ESG score. Particularly when looking at some of the most developed and wealthy economies (such as the US, Germany, and Canada) which appear among the laggards in terms of environmental performance against less wealthy economies like Malta, Slovenia, or Cyprus. As such, we judge that a comprehensive and reliable ESG framework should give a fairer picture and account for countries' differences in terms of climate mitigation requirements and longstanding progress on the environmental front.

## Environmental score – different leaders and laggards than country credit rating

Country	S&P rating	ESG score	EPI score	Country	S&P rating	ESG score	EPI score
Denmark	AAA	85	100	Hungary	BBB	65	32
United Kingdom	AA-	81	100	Austria	AA+	81	31
Finland	AA+	85	88	Romania	BBB-	63	31
Malta	A+	72	83	Norway	AAA	85	30
Sweden	AAA	84	64	Czech Republic	AA-	73	30
Luxembourg	AAA	84	64	New Zealand	AA+	83	28
Iceland	A	81	62	Belgium	AA-	77	27
Slovenia	AA-	74	58	Netherlands	AAA	82	26
Cyprus	BBB-	70	58	Portugal	BBB	74	23
Latvia	A	69	53	Italy	BBB	70	23
Croatia	BBB-	65	50	Spain	A	74	17
Estonia	AA-	75	48	France	AA	78	16
Switzerland	AAA	85	45	Australia	AAA	81	14
Slovakia	A+	69	41	Poland	A	67	10
Lithuania	A	71	40	Germany	AAA	81	9
Bulgaria	BBB	61	37	Japan	A+	79	0
Greece	BB	66	34	United States	AA+	74	0
Ireland	A+	79	33	Canada	AAA	81	0

Source: S&P, EPI Index (2022), ABN AMRO Group Economics.

However, one critical aspect this framework does not cover is the transboundary pollution spill over effect. Indeed, countries may perform well in environmental metrics by outsourcing their polluting activities and discounting trades in goods and services which is an issue that no sovereign data or frameworks have been able to cover yet. This issue has also been highlighted in the ASCOR consultation report. The project ambitions to develop such a consumption-based emission in their framework as soon as is practicable. Although, an indicator on the disclosure of consumption-based emissions is included in the second pillar under climate policies below.

### 2) Pillar 2: Climate policies (CP)

This pillar considers national policymaking efforts to mitigate emissions, adapt to climate change, and ensure a 'just transition'. The main goal of this pillar is to provide greater transparency in the sovereign's disclosure of emission data and related documents as well as demonstrate whether the country's climate targets are credible and measurable. The last theme expands the analysis of the framework to account for physical climate risks as well as social issues relating to the low-carbon transition.

One innovative approach in this pillar is the consideration of physical risks which is usually a missing climate-related risk as most research and ESG data providers have been focusing on the transition risk. In the *adaptation policy* theme, ASCOR aims to measure the preparedness of countries to deal with the physical impacts of climate change like heat waves and hurricanes. The pillar also considers disaster risk reduction policies (such as multi-hazard early warning systems) which indicate how well a country can reduce the economic and social impact of acute climate hazards. Indeed, countries adopting early warning coverage can reduce significantly its disaster mortality rate. Those indicators are particularly important for ESG sovereign bond investors usually adopting a longer time horizon in their investments and thus, seeking to reduce climate-related risks exposures.

Despite a lot of research on transition risk, we are still lacking an international framework to assess and compare countries on this topic. Indeed, the economic and tax policies adopted on a government level play an important role in the green transition and should be considered when performing a country risk analysis regarding climate change. Countries adopting strong economic and financial incentives, such as the inflation reduction act (IRA) in the US, can be critical in a country's advances toward reaching its net-zero targets. Although this aspect will not be part of this framework yet, this has been discussed as a potential area for ASCOR to develop in the future.

One interesting metric in this pillar is the inclusion of carbon pricing as more and more countries are putting carbon pricing at the centre of their mitigation strategies. The ASCOR will consider both national and supra-national carbon pricing systems such as the European Union's Emission trading systems (ETS). Finally, another innovative feature we would like to pinpoint

in this pillar is its *just transition policy* theme which addresses the social aspect of the climate transition. To do so, the ASCOR project aims to account for the social costs and distributional impacts of a country's low-carbon transition while exploiting its welfare and employment opportunities.

### **3) Pillar 3: Opportunities to finance the transition (OFT)**

This pillar considers the financing requirements needed for countries to achieve their climate goals. These indicators can be helpful for investors in recognizing countries with financial constraints and thus, that might slow down their climate-related achievements. In our view, this would best serve investors looking to invest in developing countries and emerging markets as those countries are the ones facing the greatest climate-related risks while facing limited access to financing. In this pillar, ASCOR will provide a clearer picture of a country's funding requirements to meet its climate targets, whether its financing capabilities are sufficient to meet those, and account for financing transition opportunities that can be added to the country's financing resources as well.

In addition, these indicators will highlight to investors potential investment opportunities and open further dialogue priorities between them and the issuers. However, one metric we are missing here is an indicator that analyses the use of proceeds from issued Green bonds by sovereigns to assess whether investments are aligned with the country's set climate targets. So far, only the Climate Bond initiative has developed such a tool and thus this could be used as a complementary framework.

#### **The ASCOR project will provide a helpful complement for sovereign ESG investors**

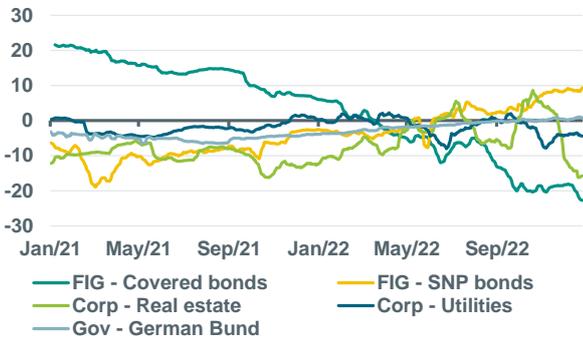
The methodology and data that will be made available by this project will provide a simple, accessible, and complementary tool for current and prospective ESG investors. This framework is not meant to serve as an ESG country scoring but for individual investors to decide how to use this broader information data availability in their decision-making process and combine it with other frameworks such as ESG scoring providers. This project could indeed provide a first stepping stone to set a comprehensive standard to be used in the sovereign ESG field and provide further clarity on sovereign exposure to climate risks and climate policies that is useful for investment decisions.

In addition, this type of framework could serve as a base for the ECB in its aims to green its sovereign portfolio in the future (for more details on this topic see [here](#)). Finally, this new tool could be used by sovereign issuers in issuing sustainability-linked bonds (SLBs) by using it as a key performance tracker. Indeed, one way for governments looking to show display ambitions in their ESG transition plans could be through the issuance of SLBs as those bonds are tied to meeting key performance indicators..

# ESG in figures

## ABN AMRO Secondary Greenium Indicator

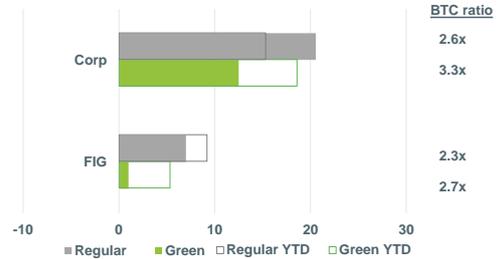
Delta (green I-spread – regular I-spread)



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

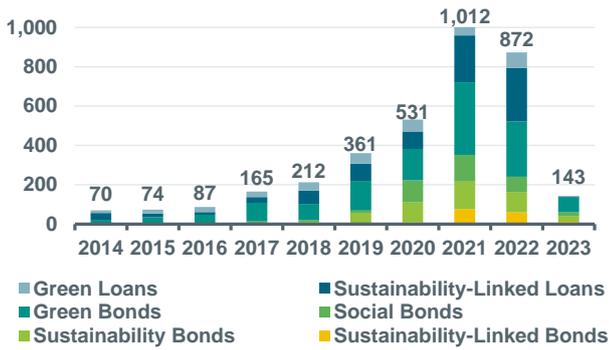
NIP in bps



Note: Data until 23-2-23. BTC = Bid-to-cover orderbook ratio. Source: Bloomberg, ABN AMRO Group Economics

## Sustainable debt market overview

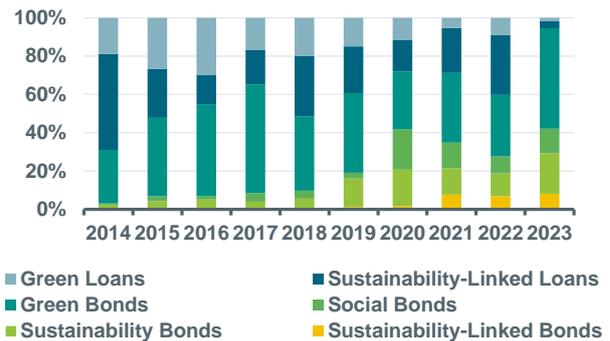
EUR bn



Source: Bloomberg, ABN AMRO Group Economics

## Breakdown of sustainable debt by type

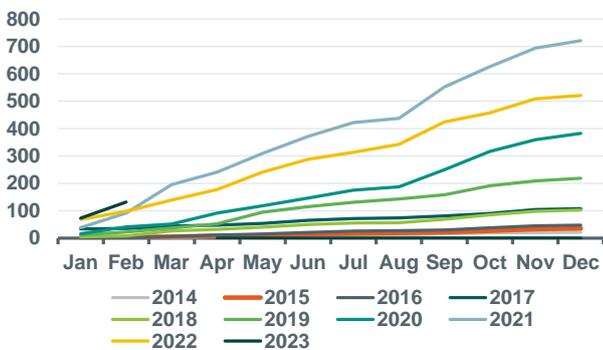
% of total



Source: Bloomberg, ABN AMRO Group Economics

## YTD ESG bond issuance

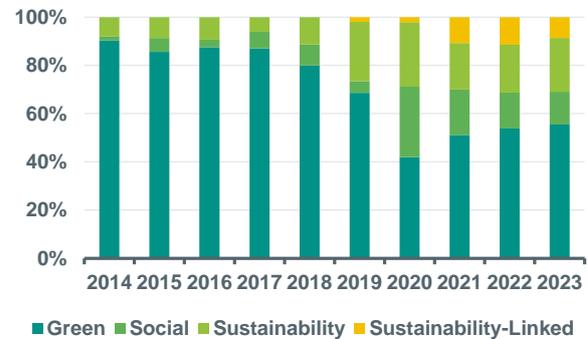
EUR bn (cumulative)



Source: Bloomberg, ABN AMRO Group Economics

## Breakdown of ESG bond issuance by type

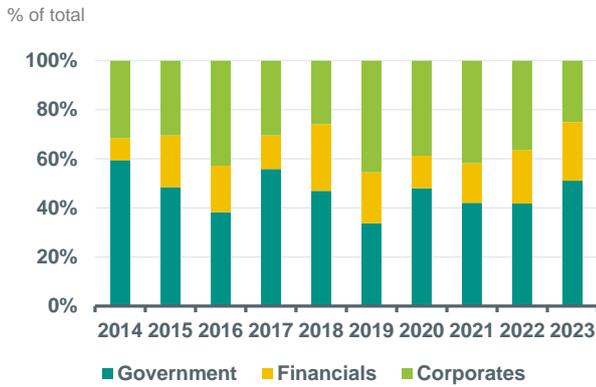
% of total



Source: Bloomberg, ABN AMRO Group Economics

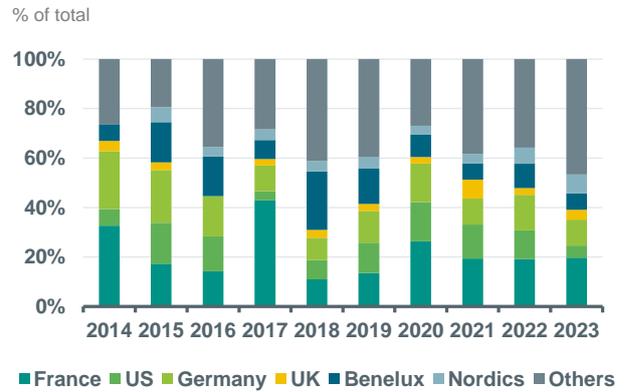
Figures hereby presented take into account only issuances larger than EUR 250m and in the following currencies: EUR, USD and GBP.

### Breakdown of ESG bond issuance by sector



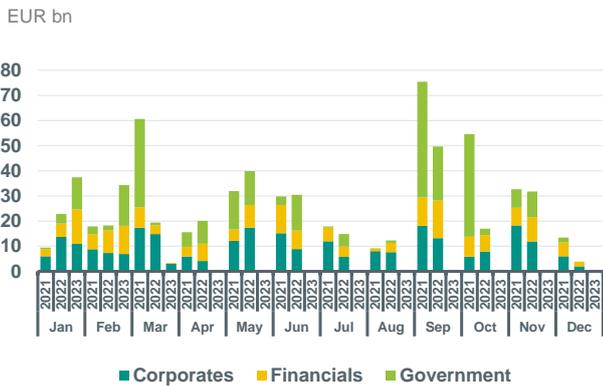
Source: Bloomberg, ABN AMRO Group Economics

### Breakdown of ESG bond issuance by country



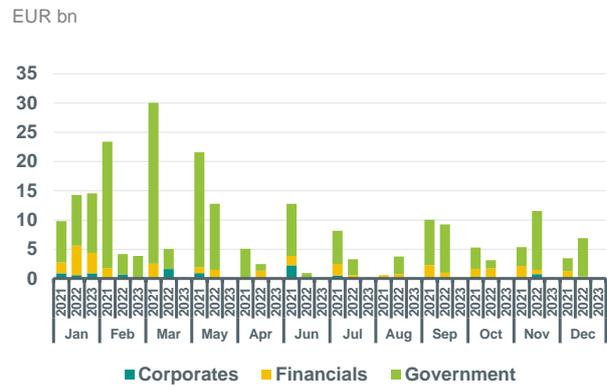
Source: Bloomberg, ABN AMRO Group Economics

### Monthly Green Bonds issuance by sector



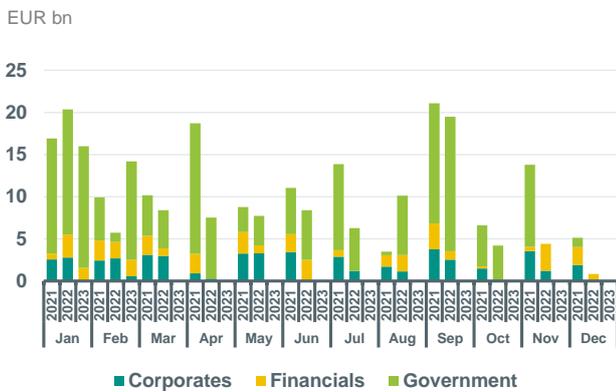
Source: Bloomberg, ABN AMRO Group Economics

### Monthly Social Bonds issuance by sector



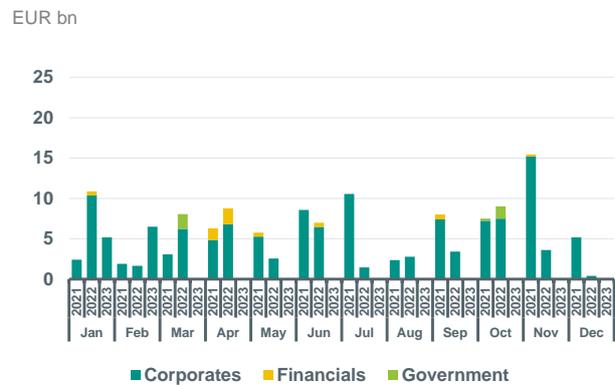
Source: Bloomberg, ABN AMRO Group Economics

### 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

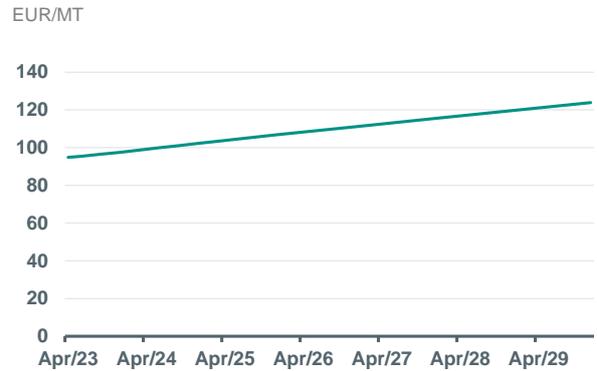
Figures hereby presented take into account only issuances larger than EUR 250m and in the following currencies: EUR, USD and GBP.

**Carbon contract current prices (EU Allowance)**



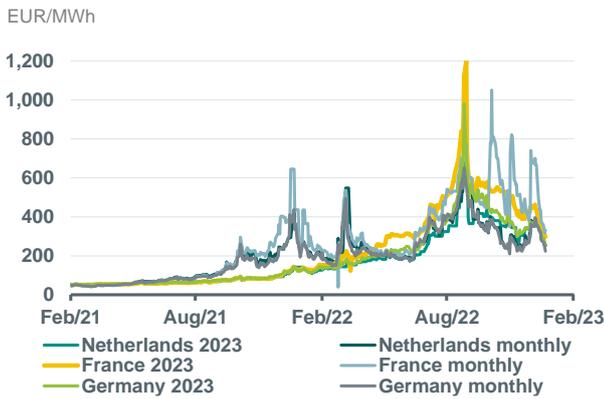
Source: Bloomberg, ABN AMRO Group Economics

**Carbon contract futures curve (EU Allowance)**



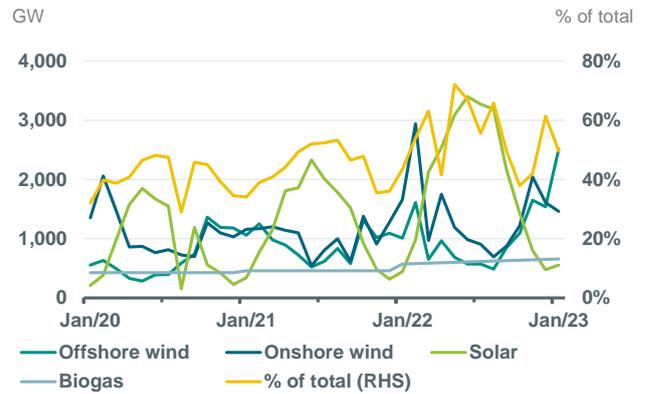
Source: Bloomberg, ABN AMRO Group Economics

**Electricity power prices (monthly & cal+1 contracts)**



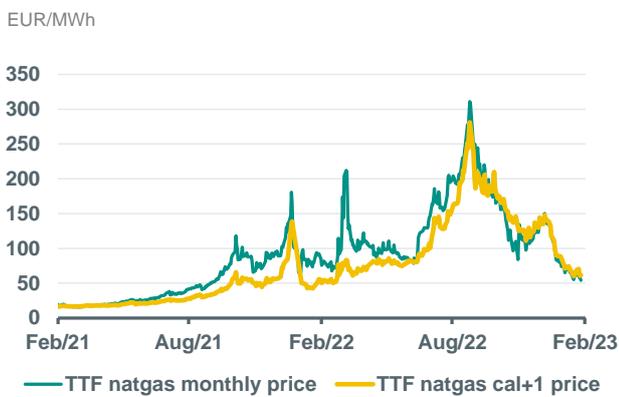
Source: Bloomberg, ABN AMRO Group Economics. Note: 2023 contracts refer to cal+1

**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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