

Group Economics | Financial Markets & Sustainability Research | 5 December 2022

Marketing Commun

SustainaWeekly

Dutch government's insulation programme falls short

- ▶ <u>Economist</u>: A significant part of the Dutch government's emissions reduction target must be delivered from the built environment. Among other policies, the government is committed to home insulation and is making funds available for this purpose. However, the funds available are only a fraction of the total insulation costs. Moreover, the 2030 reduction target cannot be met with insulation alone.
- Strategist: The greenium for EUR IG corporates has been extremely volatile in 2022. Our analysis shows that swings in the greenium for corporates outside of the real estate sector have been driven by the risk-off sentiment by investors this year. Investors in a risk-off mode tend to prefer green bonds. On the other hand, the greenium for real estate companies seems to have been impacted by the abnormal behaviour of bond spreads in this sector.
- Sectors: The ECB has published a study on the impact of carbon-related concentration risks at banks. Exposures mainly consist of climate-related transition risks. Study proves strong positive correlation between expected losses from transition risks and carbon-related concentration risk.
- **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 week's SustainaWeekly, we assess the Dutch government's National Insulation Programme. Given that the built environment is responsible for 15% of total emissions, policies to encourage the transition of this sector are important. Insulating homes is a good first step towards sustainability, though switching towards renewable energy sources and behavioural changes are also crucial. We conclude that the funds available are only a fraction of the total insulation costs. We go on to analyse movements in the greenium in the corporate bond market and a recent study by the ECB about the carbon-related concentration risks at banks.

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

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Dutch government's insulation programme falls short

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- The government aims to reduce greenhouse gas emissions in the Netherlands
- Total emissions, which stood at 168 Mton in 2021, must fall to 100 Mton by 2030
- A significant part of the emissions reduction target must be delivered by the built environment
- Building emissions must fall from 25 Mton in 2021 to 10 Mton in 2030 and zero in 2050
- Among other things, the government is committed to home insulation and is making funds available for this purpose
- However, the funds available are only a fraction of the total insulation costs
- Moreover, the 2030 reduction target cannot be met with insulation alone

Making the built environment more sustainable in the Netherlands

The Netherlands has agreed to reduce greenhouse gas emissions. The target is for Dutch emissions to be at least 55% lower in 2030 than in 1990. This means reducing emissions from 168 Mton in 2021 to 100 Mton in 2030. In its policy, the government even assumes a 60% reduction to 88 Mton. Part of the reduction must come from the built environment, which is responsible for 15% of total emissions. Homes in particular are in the spotlight of policymakers. Private households, of which homes have a significant share, account for more than 70% of emissions from the built environment (CBS). Insulating homes is a good first step towards sustainability, though switching towards renewable energy sources and behavioural changes are also crucial.

Making the built environment more sustainable in the Netherlands

In the built environment, emissions must be reduced from 25 Mton in 2021 to 10 Mton (CBS) in 2030. Climate-neutrality is the goal for 2050. To get there, there are five main routes:

- Electrification (through electric or hybrid heat pumps, heat pump boilers, electric water heaters, air conditioning, electric cooking, among others)
- Energy efficiency (by e.g. digitalisation, smart lighting, appliances and control systems)
- Behavioural changes (through e.g. education and awareness, changing consumption patterns and adapting habitual behaviour)
- Renewable energy (through e.g. bioenergy, solar panels, utilisation of residual heat)
- Building insulation (through e.g. roof, wall and floor insulation and double glazing).

A value chain approach can kick-start the transition to a climate-neutral built environment. This means a more sector-wide transformation throughout the entire life cycle of the built environment, with building owners, producers of building materials, installers, energy companies and municipalities cooperating and coordinating intensively. The government should be the lubricant in this value chain approach. This means that they commit to: clear and transparent building codes and energy standards that apply for a longer period of time, short procedures around licensing and sufficient financial incentives to make the climate-neutral goal attainable for every owner, user and resident. The National Insulation Programme (NIP) fits into this approach.

The National Insulation Programme

The NIP is an incentive for homeowners to work towards making their homes more sustainable. Everyone who is going to renovate will be affected by this programme in one way or another. The aim of the NIP is to accelerate the insulation of poorly insulated homes in particular in the period up to and including 2030. Within the NIP, there are five action lines for making the built environment more sustainable:

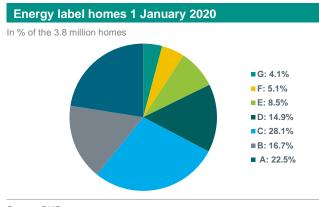
These relate to:

- An area-based approach to heat transition
- The preservation of individual homes
- · The preservation of utility buildings
- Using sustainable sources and infrastructure
- And promoting innovation and implementation capacity in construction

Insulation runs as a thread through the NIP's programmes. The approximately 4 billion euros of funds that the government has earmarked for this in total come from the 2021 Budget (514 million euros), the coalition agreement (3.35 billion euros), the scheme Investment Subsidy for Renewable Energy and Energy Saving (ISDE) and 62.5 million euros from the Climate Fund as an additional investment to accelerate the local approach NIP. Finally, the government will make a total of 300 million euros available for the NIP in 2023 and 2024 to support vulnerable households in taking energy-saving measures.

Current housing stock

To assess how the funds released by the government through the NIP for home insulation relate to the total investment costs, it is necessary to have insight into the quality of the housing stock. According to CBS, the Netherlands has a total of 8.1 million homes. Of these, 3.8 million had a valid energy label on 1 January 2020. The energy label indicates how the house scores in terms of insulation, what kind of installations are used, whether there is a natural gas connection, what heat is needed in the winter months and the share of renewable energy. The higher the label, the lower the energy consumption and the lower the emissions. The figure below shows that most homes have energy label C.



Source: RVO

Possible outcomes of current policy

The government has a target of insulating 2.5 million homes. The focus is on poorly insulated homes with energy labels E, F and G. It is estimated that around 1.5 million homes fall into this category. The cost of making these more sustainable is significantly higher than for homes with a high energy label. For instance, upgrading a G-label house to an A-label house costs an average of EUR 32,500, compared to about EUR 13,000 for a C-label house. Making homes with E, F and G to label A sustainable requires a total of about 35 billion euros and is estimated to yield a CO2 reduction of about 1.5 mton, only a fraction of the total task.

Upgrading the entire housing stock sustainable to label A amounts to an investment of 100 billion euros and leads to a CO2 reduction of 5 mton, still insufficient to meet the reduction target in 2030. This will require further upgrades to A++ and above. According to the Economic Institute for Construction, it will cost 235 billion euros to make the housing stock nearly energy-neutral (BENG). That is an average of 30,000 euros per house (235 billion divided by the total housing stock), but the variation in costs between houses is large, as the final burden depends heavily on the alternative to gas chosen. Added to this, the strong demand for housing sustainability combined with the lack of skilled workers and materials can lead to substantial price fluctuation.

Conclusion

Insulation is an important and necessary step in making the built environment more sustainable. But it is insufficient to meet the emissions target. The amounts provided by the government are only a fraction of the total costs, though enabling households – which in some cases are liquidity or credit constrained – to make the investment is also likely to be part of the buildings transition. On balance, lower energy costs are the main financial incentive for homeowners to make their homes more sustainable. We will follow up on the financial incentives in an upcoming note.

Investors prefer green bonds when in risk-off mode

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- ▶ The greenium for EUR IG corporates has been extremely volatile in 2022.
- We investigate what could be a potential driver for the higher greenium.
- Our analysis shows that the greenium for corporates outside of the real estate sector seem to have been driven by the risk-off sentiment by investors this year.
- Investors in a risk-off mode tend to prefer green bonds.
- On the other hand, the greenium for real estate companies seems to have been impacted by the abnormal behaviour of bond spreads in this sector.

It has been a bumpy year for fixed income instruments, and green bonds were no exception. Not even the greenium, which measures the difference between spreads on a green bond and spreads on a regular bond, escaped the turbulent market. Looking at the EUR IG corporate bond universe, we see that the greenium has never been so volatile (see charts below). While before the Russia-Ukraine war we tended to see them at around 4bps on average, the amount of greenium has since then become rather uncertain.

The greenium has never been so volatile... Greenium (bps) 0 -2 -4 -6 -8 -10 -12 Apr-21 Aug-21 Dec-21 Apr-22 Aug-22



Aug-22

.Which is partly driven by real estate bonds

Greenium, excluding real estate bonds (bps)

0 -2

-4 -6

-8

-10

Source: Bloomberg, ABN AMRO Group Economics

Source: Bloomberg, ABN AMRO Group Economics

What drives the greenium?

Drivers of greenium can vary per asset class. Hence, we will focus on IG corporate bonds in this note. It is important to note that more than 75% of the IG EUR green bond corporate market is composed by utilities and real estate bonds, which means our analysis is unavoidably biased by the behaviour of these two sectors. To investigate what could be a factor driving the greenium, we needed a decent historical timeframe in our sample. This means we needed to focus purely on 'older' green bonds. We have therefore set a requirement for bonds which have been issued necessarily before 1-4-2021. We estimate the greenium by looking at comparable non-ESG bonds from the same issuer, but whose bond duration does not exceed the green bond's one by more than 1.5 years. Our sample has a total of 53 ESG/non-ESG bond pairs.

Firstly, by taking a closer look at the behaviour of the greenium, we can see that the large volatility seen this year was partially attributed to real estate bonds. With real estate bonds trading at abnormally wide levels, it seems that real estate credit investors have pushed the green feature to the backburner. We therefore also calculate the greenium for the corporate universe by excluding real estate companies. As shown in the chart above on the right hand side, while we see that the greenium still shows some volatility, this is not to the same extent as for the whole market. Nevertheless, the trend of a higher greenium until around August this year, slowly reversing to more normal levels since then, seems to be there in both cases.

We first try to investigate whether the greenium could be correlated with volatility in the market. However, our analysis shows that there is no correlation with either the implied equity volatility (V2X index) nor the implied rates volatility (MOVE

index). We therefore try to assess whether there could be a relationship with the bond spread levels of the broad corporate market. And indeed, as shown on the charts on the next page (left side), the greenium seems to be somehow correlated with general spread levels. As we previously noted, around 75% of the corporate green bond market are bonds from either utilities or real estate issuers. Given that we have (for now) excluded real estate bonds from this analysis, our greenium calculation is naturally being influenced by developments in the utilities bond market. And indeed, as shown on the chart below (right side) there seems to be a strong correlation between the spread levels of utilities bonds and the greenium. Hence, as investors become more bearish on the sector, and the spread levels go wider, the greenium seems to follow by also becoming stronger. There could be therefore a higher preference of investors to hold utility green bonds vs utility regular bonds once the market sentiment turns.



We note however that since very recently, this relationship does not seem to hold anymore. At least not on absolute spread levels. While we saw spreads drifting slightly lower in the past few weeks (see dotted line cut-off on the chart above), the greenium has come back to normal (pre-crisis) levels. It could be therefore that the greenium is more related to investors' sentiment rather than absolute spread levels. That is, even if the spread tightening of utilities bonds was of 'only' 10-15bps, the recent rally in the bond market was fuelled by investors' more optimistic sentiment on the economy and the hopes that central banks could pivot. The more bullish view of investors could have driven them away from green bonds, which had therefore a negative impact on the greenium.

But what would drive investors into green bonds in moments of market stress? Research from Yousaf et al. (see here) shows that green bonds can act as safe heavens during large market fluctuations. These bonds present lower volatility and are therefore more effective in providing diversification and therefore reduce portfolio risk. Hence, they conclude that green bonds achieve a larger reduction in volatility vs regular bonds. We have also previously shown (here) that green bonds seem to demonstrate a better Sharp ratio, indicating therefore a better risk-adjusted return. This could be one of the potential explanations for why we seem to see higher greeniums when investors are in a risk-off mode.

The greenium for real estate

We have so far excluded from our analysis the bonds coming from real estate issuers. We now focus on the greenium from these bonds given their importance in how the overall corporate greenium has behaved. As shown in the chart below (left side), the greenium was extremely volatile this year, ranging from -30bps to a completely non-existent greenium in a few months. This graph also allows us to see that there does not seem to be a strong correlation with the movement in spreads of IG EUR real estate bonds. However, we do note that, in contrast to the case for utilities, real estate bonds generally started to trade at abnormally wide levels, reaching a peak of almost 300bps over asset swaps this year. Trading at levels only previously seen during the 2008 crisis, it makes sense that real estate credit investors panicked and have therefore relegated considerations of the green label to the backburner.

Greenium of real estate issuers not strongly correlated with spread levels...



Source: Bloomberg, ABN AMRO Group Economics

...The greenium seems to be more strongly correlated with the movement in spreads



Source: Bloomberg, ABN AMRO Group Economics

We therefore assumed that the greenium of real estate bonds could be better explain by the amplitude of change in spread levels. And indeed, as shown on the chart above (right), we see that there seems to be a stronger relationship between how much spreads have changed rather than the absolute movement. We would therefore argue that while investors tend to prefer green bonds in moments of crisis, if there is a general feeling of distrust in a certain bond / sector, other factors away from the green label start to become of overriding importance.

The greenium does not depend on the issuance date

Lastly, since we focused our analysis on bonds issued before 1-1-2021, we want to investigate whether our results could also hold for newly issued bonds. We have therefore split our sample between bonds issued before and after 1-1-2020. As shown in the chart below, the greenium seems to be pretty consistent amongst both old and new bonds. Hence, our analysis should also hold for the other green bonds not included in our sample, including the ones that have been issued recently.

No larger greenium for older or newer bonds



Source: Bloomberg, ABN AMRO Group Economics

Carbon-concentration risks poses threat to banks

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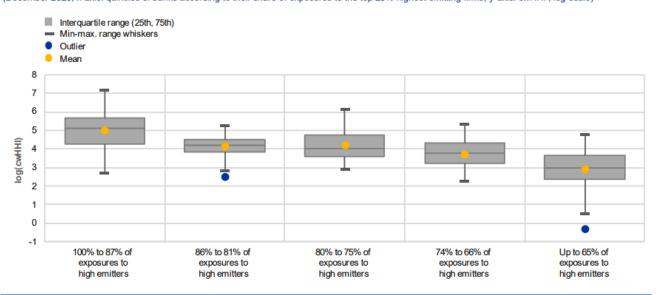
- ECB studied impact of carbon-related concentration risks at banks
- Exposures mainly consist of climate-related transition risks
- Study proves strong positive correlation between expected losses from transition risks and carbonrelated concentration risk

The ECB published a study in its latest Financial Stability Review (see here) about carbon-related concentration risks within the banking sector. This follows other reports (e.g. the ECB's climate stress tests) focussing on banks' exposures to climate-related risks, and those stemming from transition risks especially. Indeed, the fact that efforts to reach net zero goals have to be stepped up, has also increased transitions risks that banks are facing. Changes to regulation regarding fossil-fuel-intensive industries can, for instance, result in a sudden drop in the value of these companies. This, in turn, can have adverse effects on banks' exposure to these companies. The ECB defines carbon-related concentration risk as 'the risk that a subset of a given bank's exposures could suffer simultaneous, significant losses in value because of the materialisation of transition risk'. What is more, the ECB's climate stress test published in the summer showed that more than 60% of banks' interest income was derived from loans to corporates belonging to the 22 most carbon-intensive industries, suggesting that carbon-related concentration risks should not be underestimated.

The ECB uses the Herfindahl-Hirschman Index (HHI), which is a measure often used to measure concentration risks within industries, to measure carbon-related concentration risks within banks' corporate loan portfolios. In order to do so, the ECB adds emission data (scope 1,2, and 3) of individual firms that banks lend to, while also defining high-emitting companies as those that have absolute carbon emission levels within the top 25 percentile of the sample of firms that euro area banks have loan exposure to. In other words, the adjusted HHI index gives an indication of lending exposure of banks to high-emitting firms, also adjusted for the level of carbon emissions of these firms. The results show that the carbon-weighted HHI is positively correlated with the share of bank exposure to high-emitting firms. However, there are quite some differences among banks that have largest (as well as those with lowest) lending to high-emitting companies.

Share of portfolio allocated to high-emitting firms vs carbon-weighted Herfindahl-Hirschman Index

(December 2020, x-axis; guintiles of banks according to their share of exposures to the top 25% highest emitting firms, y-axis; cwHHI, log-scale)



Sources: ECB calculations based on NGFS, AnaCredit, Orbis, iBACH, Register of Institutions and Affiliates Database and Urgentem data.

The ECB continues by assessing expected losses stemming from carbon-related concentration risks, by applying the disorderly transition scenario from the climate stress test. The central bank uses different steps to deduct the extent of losses that can be related specifically to carbon-related concentration risks. Overall, the study finds that banks that have

large lending exposures to high-emitting firms as well as high concentration risks as measured by the adjusted HHI, do have considerably higher expected losses (35%) specifically attributed to carbon-concentration risk. In fact, expected losses are almost double for banks with high lending exposure as well as high concentration risks compared to banks that have lower carbon-concentration risks while also having large lending exposures to high-emitting firms. Similar results were found across banks with lower exposure to high-emitting companies and high/low carbon-concentration risks. Overall, the findings support the view that carbon-concentration risks should be taken into account seriously when assessing climate-related transition risks for banks. As such, it is likely to be increasingly looked at by regulators as well.

ESG in figures

ABN AMRO Secondary Greenium Indicator

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

20

10

0
-10
-20

-30

Jan-21 May-21 Sep-21 Jan-22 May-22 Sep-22

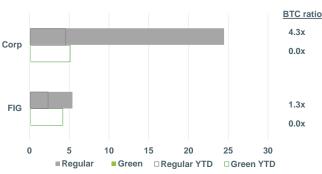
—FIG - Covered bonds
—Corp - Real estate
—Gov - German Bund

—FIG - SNP bonds
—Corp - Utilities

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

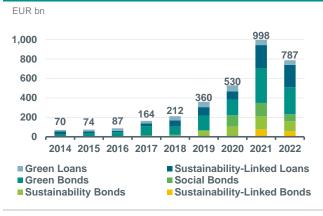
ABN AMRO Weekly Primary Greenium Indicator

NIP in bps



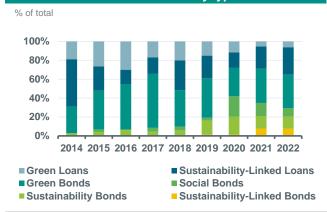
Note: Data until 2-12-22. BTC = Bid-to-cover orderbook ratio. Source: Bloomberg, ABN AMRO Group Economics

Sustainable debt market overview



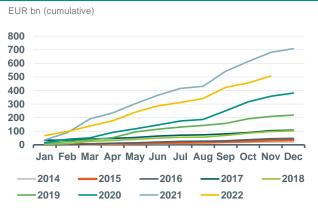
Source: Bloomberg, ABN AMRO Group Economics

Breakdown of sustainable debt by type



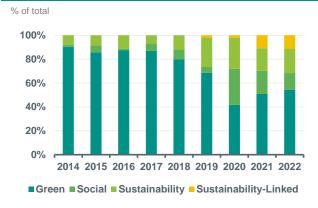
Source: Bloomberg, ABN AMRO Group Economics

YTD ESG bond issuance



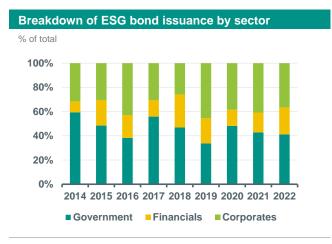
Source: Bloomberg, ABN AMRO Group Economics

Breakdown of ESG bond issuance by type

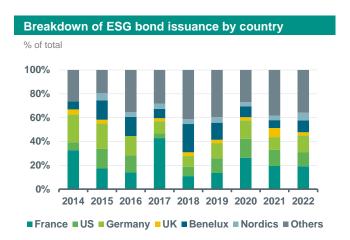


Source: Bloomberg, ABN AMRO Group Economics

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

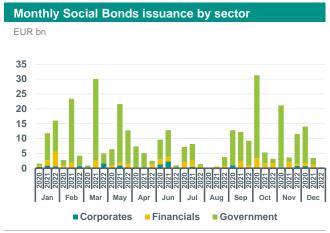


Source: Bloomberg, ABN AMRO Group Economics

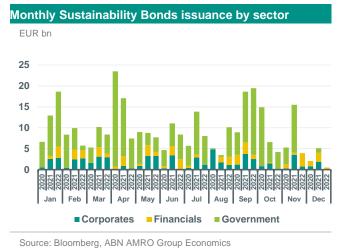


Source: Bloomberg, ABN AMRO Group Economics

Source: Bloomberg, ABN AMRO Group Economics



Source: Bloomberg, ABN AMRO Group Economics



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Source: Bloomberg, ABN AMRO Group Economics

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EUR/MT 140 120 100 80 60 40 20

Jan-22

May-22

Sep-22

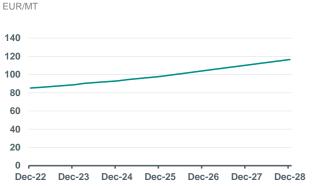
Source: Bloomberg, ABN AMRO Group Economics

Sep-21

May-21

Jan-21

Carbon contract future prices (EU Allowance)



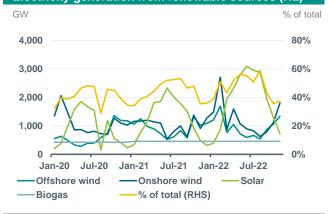
Source: Bloomberg, ABN AMRO Group Economics

Electricity power prices (monthly & cal+1 contracts)



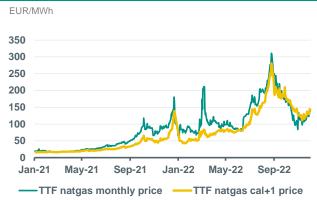
Source: Bloomberg, ABN AMRO Group Economics. Note: 2023 contracts refer to cal+1 $\,$

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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