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Insight INVESTMENT

CARBON FOOTPRINTING FOR GREEN BONDS
A WAY FORWARD

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EXECUTIVE SUMMARY

- In the absence of data from issuers, some investors are seeking to estimate the carbon footprint of specific green bonds. This could help them identify and pursue outcomes linked to carbon emissions targets, such as net-zero goals, and to measure progress with more accuracy.
- There is no standard estimation methodology, and the approaches available produce very different results. We propose an approach that builds on a standard from the Partnership for Carbon Accounting Financials (PCAF) and accounts for the lack of data reported for green bonds after issuance.
- We offer case studies to illustrate the impact of differing assumptions, the need for relevant assumptions and data, and why a different approach is needed for financial services. They also illustrate the implications for conventional bond portfolios: to represent an issuer's overall carbon footprint accurately, once the carbon footprint of green bonds is estimated, the carbon footprint of the issuer's conventional debt needs to be adjusted to avoid underreporting emissions.
- A standardised approach, with sufficient coverage, would lead to benefits for investors, issuers and policymakers pursuing wider sustainability objectives. We therefore encourage issuers to disclose the carbon footprint associated with projects financed by green bonds using widely accepted industry standards and believe this would be best achieved by an update to the International Capital Market Association (ICMA) Green Bond Principles guidance to issuers. We are also seeking to encourage collaborative industry groups to agree and establish a standard: this may mean further work on the PCAF standard so that it can be practically applied or updating the GHG Protocol.
- Even if the options today are imperfect, choosing and applying an estimation methodology means investors will more closely reflect the reality of carbon footprints in their portfolios.

THE CARBON FOOTPRINT OF A GREEN BOND: THE NEED FOR A MARKET STANDARD

A key metric for many investors is the carbon footprint of their investment portfolio, as they seek greater transparency on their holdings and to comply with various regulatory requirements.

An investor might assume that the carbon footprint of a green bond focused on climate solutions would be materially different to that of its issuer – particularly for corporate issuers that are still transitioning to a low-carbon model, meaning they are likely engaged in activities with larger carbon footprints.

However, issuers do not typically report on the carbon footprint of projects financed by a green bond. Instead, to estimate such bonds' carbon footprints, we observe that many investors use either the issuer's carbon footprint or simple estimation techniques. This could lead to different investors reaching different conclusions about the suitability of these instruments for investors with set decarbonisation or low-carbon thresholds – or even to reach a misleading conclusion about their suitability or otherwise.

A robust methodology to estimate the carbon footprint of green bonds could offer some clear benefits.

- For investors, it could help them identify and pursue sustainability outcomes linked to carbon emissions targets, such as net-zero goals, with greater confidence and precision. It may also be possible to use the output to measure progress with more accuracy.
- For issuers, it would help them comply with sustainability standards and requirements for sustainable investments even as they become more stringent. For example, the Principal Adverse Impact (PAI) regime under the EU Sustainable Finance Disclosure Regulation (SFDR) includes indicators on the carbon footprint and greenhouse gas intensity of investments.
- Overall, we believe a transparent and consistent methodology would support comparability, and thereby aid in-depth assessments of green bonds, and form part of issuer-level and security-level ESG analysis.

However, there is no accepted market standard on how to account for the carbon footprint of a green bond.

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This issue also has implications for the carbon footprint of conventional bond and equity portfolios, given the need to adjust companies' overall metrics to reflect any green bonds they issue.

A BRIEF INTRODUCTION TO CARBON METRICS

As climate change has become more important for investors, industry standards have developed to report on and account for financed carbon emissions. This has enabled transparent disclosures of greenhouse gas (GHG) emissions to identify climate-related risks and opportunities including setting science-based emission reductions targets.

GHG emissions are typically split into three categories:

- **Scope 1 emissions** are direct emissions from sources owned or controlled by an entity.
- **Scope 2 emissions** are indirect emissions, generated by purchased energy.
- **Scope 3 emissions** are indirect emissions, not included in scope 2 emissions, that occur in the value chain of the entity. These include both 'upstream' and 'downstream' emissions.

Notably, there are also **Scope 4 emissions**. These are 'avoided' emissions, which are typically reported in green bond post-issuance impact reporting. These outline the carbon emissions avoided by choosing a particular project (e.g. a renewable energy plant versus a fossil fuel plant alternative).

Emissions are measured in units known as 'carbon equivalents' (CO_2e), which are used to measure all GHG emissions in a single metric. Based on these units, it is possible to calculate the weighted average carbon intensity (WACI) and carbon footprint of an entity (see Table 1).

Table 1: The two standard measures of carbon emissions

Weighted average carbon intensity	tCO_2/$m sales	Carbon intensity calculations take a company's total Scope 1 and Scope 2 emissions, then normalise these by revenue (US$). This data is not modified, is sourced from MSCI, and is weighted to calculate an investor's share.
Carbon footprint	tCO_2/$m EVIC	Carbon footprint calculations take a company's total Scope 1 and Scope 2 emissions, then normalise these by the market capitalisation of a company plus the book value of debt (known as enterprise value including cash, or EVIC, in US$). To calculate an investor's share of emissions this is re-weighted by the investor's holdings of an issuer's debt.

GREEN BOND CARBON FOOTPRINTING METHODOLOGIES

To ensure transparency and comparability, we believe it is important that a credible and robust market standard emerges for calculating the carbon footprint of green bonds. This will help to support investors, issuers and policymakers with regard to decisions about the distribution of and exposure to emissions, and tackle underreporting of emissions. This represents a shift from calculating financed emissions based on an issuer's profile to security-level financed emissions.

In considering how a market standard might develop at the security level rather than the issuer level, Insight has considered four widely used methods for calculating the carbon footprint of a green bond.

Summary of green-bond carbon footprinting methodologies

		Methodology — Summary	Advantages	Disadvantages
1	Using the issuer's carbon footprint for a green bond	Green bond has the same carbon footprint as the issuer's conventional bonds	Conservative approach using data that is more readily available	Ignores any emissions reduction typically associated with the projects financed by green bonds for companies that are transitioning
2	Zero emissions or a blanket proportional reduction in emissions	Green bond has a carbon footprint of 0 or 50% of the issuer's emissions	Simple approach to provide a uniform carbon benefit	Lacks accuracy
3	Green bond estimations provided by MSCI as part of total portfolio footprinting methodology	MSCI estimates green bond carbon footprint by classifying green bond projects into seven environmental categories and uses an average emissions intensity of the relevant environmental category	Ease of implementation	Only provides high level estimations
4	PCAF recommendations	Recommendation for issuers to report project specific carbon data otherwise a carbon estimation approach is proposed	Accurate approach	Requires issuers to provide project-specific carbon data in their reporting

Based on this investigation, we have formulated an internal estimation proposal, which we outline in the following section.

1 USING THE ISSUER'S CARBON FOOTPRINT FOR A GREEN BOND

To date, most investors have understood and reported the carbon footprint of a green bond as being equal to a similar conventional bond by using the carbon footprint of the issuer.

This treatment is a conservative approach, in our view. However, it does not reflect the carbon benefit of the green bond if it finances projects which are less carbon-intensive than the issuer's overall economic activities. This is likely to be the case as green bonds are often used by issuers to finance their transition to a low-carbon model, and therefore the projects financed can have a materially different carbon profile to the activities financed by a conventional bond.

We would expect the carbon profile of green and conventional bonds to converge over time for issuers that are committed to net zero as they increase their capital expenditure towards green projects, in line with Paris Agreement decarbonisation targets.

2 ZERO EMISSIONS OR A BLANKET PROPORTIONAL REDUCTION IN EMISSIONS

In the absence of high-quality emissions data for specific projects financed by green bond proceeds, a simple solution to estimating the carbon benefit of a green bond is to automatically assign a carbon footprint of zero, or apply an emissions profile lowered by a set percentage relative to the issuer's carbon footprint.

While it is likely that green bonds focused on climate solutions issued by companies transitioning to a low-carbon model would have a carbon benefit, we believe it is inaccurate and inappropriate to assume that green bonds from such issuers would have zero associated emissions; they would likely have some associated emissions. Applying a zero-emissions profile would also expose stakeholders to the risk of increasing the reported carbon footprint in future when data become available and/or other methodologies are applied.

These challenges to a zero-emissions profile being applied support the simple alternative of applying a blanket proportional reduction relative to the issuer's overall profile, specific to sector and project type. This could be a more appropriate methodology to reflect the magnitude of green bond emission reductions.

3 GREEN BOND ESTIMATIONS PROVIDED BY MSCI AS PART OF TOTAL PORTFOLIO FOOTPRINTING METHODOLOGY

As part of its work to offer total portfolio carbon footprint information, MSCI has published a carbon footprint estimation approach for green bonds. This is for use in the absence of high-quality quantitative data on absolute emissions of the projects financed by a green bond's proceeds.

This approach involves classifying green bond proceeds into seven environmental categories: alternative energy, energy efficiency, pollution prevention and control, sustainable water, green buildings, climate adaptation, and other green activities. MSCI has defined an emission intensity for each category, generally using an estimated average for the relevant GICS sub-category, assuming proceeds are fully allocated and projects are fully operational rather than under construction.

This embeds an assumption that all green bonds are made equal: two green bonds from different issuers but with the same allocation (such as 100% to renewable energy projects) will have the same carbon footprint. This does not incorporate the location of a green project's emissions and the differences between projects within one of the seven categories: for example, a solar energy project will have a different carbon profile relative to a wind energy project.

4 RECOMMENDATIONS FROM THE PARTNERSHIP FOR CARBON ACCOUNTING FINANCIALS (PCAF)

PCAF is an industry-led initiative created to enable financial institutions to consistently measure and disclose the GHG emissions associated with their financial activities by establishing suitable standards, methodologies and approaches.

PCAF has published draft GHG accounting methods, including for green bonds[1]. This methodology focuses on bonds where the use of proceeds are within the operational control of the issuer, meaning that it would not apply to green bonds issued by banks.

The proposal recommends using attributed absolute, avoided, or removed emissions as reported in the post-issuance impact reporting of issuers. However, PCAF acknowledges this is rarely available, and provides the below equation to be used to calculate the carbon footprint of a green bond.

$$\textit{Financed emissions} = \textit{Attribution factor } X \sum_{project} \frac{\textit{Green bond part of project}}{\textit{Debt + Equity of project}} \; X \textit{ project emissions}$$

The estimation of emissions should follow guidance published in the project finance PCAF standard[2], whereby green bond activity emissions are estimated using default emissions factors based on physical activity or economic activity.

[1] Draft: New methods for public consultation: For financial institutions measuring and reporting scope 3 category 15 emissions (PDF), November 2021, PCAF.
[2] See pages 79 to 87, Financed Emissions: The Global GHG Accounting & Reporting Standard, Part A (PDF), December 2022, PCAF.

INSIGHT'S INTERNAL ESTIMATION APPROACH TO CARBON FOOTPRINTING FOR GREEN BONDS

Insight proposes an estimation methodology for the carbon footprint of green bonds that builds on the PCAF standard and takes into account the lack of reported data in post-issuance reporting, while aiming for a robust and theoretically sound estimation approach.

The estimation methodology is split into three steps: **defining the allocation of proceeds, applying a carbon emission factor and then estimating the carbon emissions and carbon footprint of a green bond.**

STEP 1: DEFINING THE ALLOCATION OF PROCEEDS

Allocation is preferably based upon either reported post-issuance allocation data or on estimated allocation split from the issuer.

- **If more than one year has passed since issuance**, the allocation of proceeds should be detailed in post-issuance allocation reporting, including the percentage allocated towards eligible projects and the geographical location of those projects.
- **If less than one year has passed since issuance**, or the allocation report has not been published, the allocation can be estimated using the issuer's previous green bond allocations as outlined in other post-issuance reporting. This assumes newer issuance will follow the same trend.
- **If it is an inaugural green bond issuance**, meaning previous allocation reporting is not available, the methodology assumes the allocation will be equally split between all projects outlined in the framework, and that the projects will occur in line with the general business geographical revenue generation split.

The allocation estimation is used to identify the appropriate carbon emission factor to be applied to the green bond proceeds.

STEP 2: APPLYING A CARBON EMISSION FACTOR

Once allocation of proceeds has been identified or estimated, the appropriate carbon emission factors[3] can be applied.

Under a PCAF classified data quality score 5, scope 1, 2 and 3 emission factors can be accessed for a range of economic activities within different countries and regions from PCAF. PCAF uses the Exiobase[4] dataset, and modifies the information to align emissions data with the emissions scope definitions of the GHG Protocol, a widely used standard for measuring GHG emissions.

Insight uses the asset-based emission factor (as opposed to revenue-based factor) for an economic activity: for example, electricity generated from wind. The emission factor is taken at either the country or regional level depending on suitability.

The asset-based emission factors are expressed in tCO_2e per €m; in other words, the data reflects how many tonnes of CO_2e are released by an economic activity for €1m of assets in a specific region or country.

STEP 3: ESTIMATING THE CARBON EMISSIONS AND CARBON FOOTPRINT OF A GREEN BOND

The allocation proportion and carbon emission factors are combined to produce the carbon emissions and carbon footprint for individual green bonds, where an investor can evaluate based on holding size.

Issuer re-adjustment

By giving green bonds a potential preferential carbon treatment, to avoid undercounting overall emissions, we believe the issuer's emissions profile should be adjusted to exclude green bonds and the projects they have financed.

This can be achieved by taking the absolute emissions of the issuer and subtracting the estimated total emissions associated with the green bond portfolio. The size of the green bond portfolio can be subtracted from the total EVIC of the issuer, to enable the recalculation of the issuer's carbon footprint.

Data availability

To promote a widescale adoption of the above estimation methodology all data points required for assumptions need to be readily available. There also needs to be industry wide agreement mapping the appropriate carbon emission factor to each ICMA-aligned green project activity.

[3] An 'emission factor' is a factor that converts activity data into GHG emissions data (for example kg CO2 emitted per litre of fuel consumed, or kg CO2 emitted per kilograms of material produced). Source: Technical Guidance for Calculating Scope 3 Emissions (PDF), 2013, GHG Protocol.
[4] Exiobase is a global, detailed multi-regional environmentally extended supply-use table (MR-SUT) and input-output table (MR-IOT). Multi-regional input-output tables are matrices in which rows and columns represent sectors within specific geographies. The MR-IOT can be used for the analysis of the environmental impacts associated with the final consumption of product groups, and are considered a key framework to analyse the effects of the global economy on the environment. Exiobase provides data on industry-specific and final demand air emissions for 27 pollutants calculated at a global level.

CASE STUDIES: HOW DIFFERENT METHODOLOGIES LEAD TO VERY DIFFERENT RESULTS

We applied these methodologies to four companies: multinational utility companies **Iberdrola** and **EDP**, German residential real estate company **Vonovia** and Netherlands retail bank **De Volksbank**.

These companies were selected as illustrative examples due to the high proportion of outstanding green-labelled debt and strong ESG and impact performance. These companies are also in sectors with material carbon footprints:

- The International Energy Agency (IEA) estimates that the energy sector is responsible for over two thirds of global GHG emissions[5] due to a high reliance on fossil fuels. **Iberdrola** and **EDP** have already demonstrated carbon footprint reductions to date and both have net zero goals by 2040.
- The building sector accounted for 31% of final energy demand globally, and 21% of GHG emissions[6]. **Vonovia** has committed to carbon neutrality by 2045.
- The banking sector is a key facilitator of the net-zero transition and it is therefore key to understand the climate impact of the sector's lending and investment portfolios. **De Volksbank** has a target for a climate-neutral balance sheet by 2030.

Below we present the results of the application of the different carbon footprinting methodologies.

WHAT THESE CASE STUDIES DEMONSTRATE

The different carbon footprinting methodologies produce very different carbon footprints for the issuers' green bonds. This would potentially lead to significant variance in the total carbon footprint an investor would report for a portfolio, and could also have implications as to the perceived suitability of these instruments for funds with set decarbonisation or low-carbon thresholds.

A key point relevant to each of the case studies below is that once a green bond's carbon footprint is estimated, this will lead to a readjustment in the issuer's overall carbon footprint, which would apply across green debt, conventional debt and equities. Without such a readjustment, the issuer's overall emissions would be underrepresented.

Utility sector examples: Iberdrola and EDP – highlighting the impact of differing assumptions

For energy companies Iberdrola and EDP, all the estimation methods resulted in a lower carbon footprint for green bonds relative to the overall issuer. This is expected, as these green bonds finance renewable energy projects, while the companies as a whole are still transitioning away from fossil-fuel to renewable-energy generation.

- **The highest proportion of Iberdrola's emissions are Scope 3 emissions.** This is maintained for each methodology, apart from MSCI, where Scope 3 emissions are not estimated. We expect Scope 3 emissions to be the primary source of Iberdrola's emissions as they represent Iberdrola's customers using the energy generated by the company. We believe this highlights the need for a methodology to take Scope 3 emissions into account.

[5] CO2 Emissions in 2022, March 2023, IEA.
[6] Climate Change 2022: Mitigation of Climate Change, 2022, Intergovernmental Panel on Climate Change (IPCC).

- **For Scope 2 emissions, Insight's methodology reports zero emissions, while MSCI reports a number greater than zero for both Iberdrola and EDP.** This reflects differing assumptions: in Insight's model, Scope 2 emissions from the purchase of energy generated by wind and solar, financed by green bonds, is recorded as zero. This is a key assumption that would need to be standardised.
- **EDP was a more carbon-intensive business than Iberdrola at the end of 2021, and this is clear from the emissions data.** As a result, there is a greater reduction in emissions estimated for EDP's green bond relative to EDP's conventional debt, compared with Iberdrola. This supports our expectation that as issuers decarbonise, the carbon footprint of an issuer's green and conventional bonds will converge.
- **The different results for green bond emissions result in different subsequent adjustments to the issuers' overall carbon footprint.** The differences in results for green bonds' carbon footprints are illustrated in Table 2. While the readjustment of the issuer's emissions may seem insignificant relative to the overall reduction in emissions for green bonds, it is important to apply this readjustment to prevent undercounting emissions. This highlights the wider impact of using different methodologies for calculating green bond emissions.

Figure 1: Iberdrola carbon footprint[7]

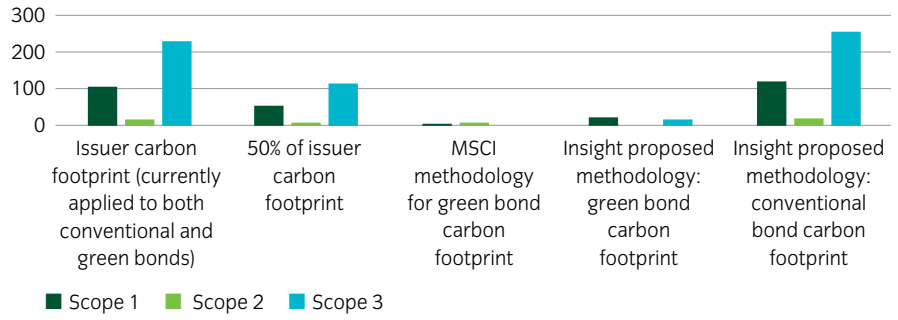


Figure 2: EDP carbon footprint[8]

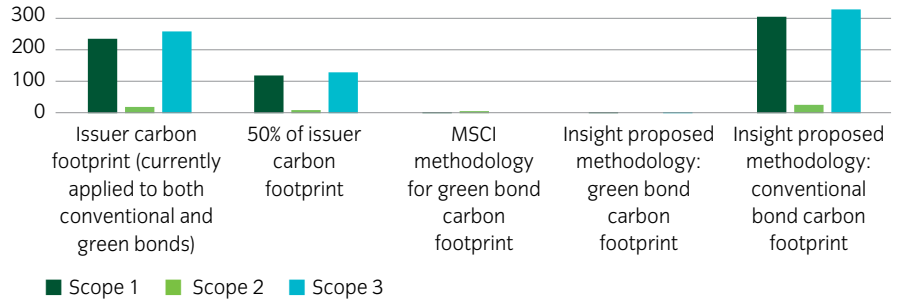


Table 2: Different estimation methodologies result in very different measures for green bond carbon footprints

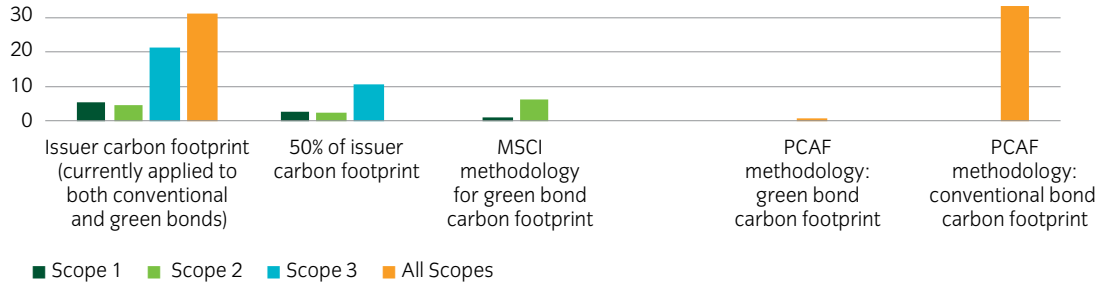
Methodology	Scope 1 Iberdrola	Scope 1 EDP	Scope 2 Iberdrola	Scope 2 EDP	Scope 3 Iberdrola	Scope 3 EDP
Insight proposed methodology: % reduction of a green bond's carbon footprint compared to using the issuer's carbon footprint	80%	99%	100%	100%	93%	99%
MSCI methodology: % reduction of a green bond's carbon footprint compared to using the issuer's carbon footprint	97%	98%	60%	61%	N/A	N/A

[7,8] Source: Bloomberg and Insight analysis.

Building sector example: Vonovia – highlighting the need for relevant assumptions and data

- **German residential real estate company Vonovia reports a low carbon footprint in its Scope 1 and Scope 2 emissions profile meaning that, counterintuitively, some estimation methodologies result in its green bond carbon footprint being estimated as higher than the issuer's overall footprint.** For example, MSCI's methodology – which uses averages for the project type identified, rather than considering the specific issuer or security – estimates a 35% higher carbon footprint versus the overall issuer's reported footprint (see Figure 3). This highlights the value of issuer-specific or security-specific methodologies.
- **Vonovia reports the carbon emissions of its green bond portfolio, so the PCAF methodology is applicable.** Only total emissions of the portfolio are provided (rather than as Scope 1, 2 and 3) so the methodology is only applicable to 'All Scopes', as shown in Figure 3. The resulting reported green bond carbon footprint is significantly reduced versus the issuer's reported numbers, and is lower than other estimation methods, which would result in a small readjustment upwards. This shows the potential value in reporting on green bond portfolio emissions.
- **Insight's methodology is inapplicable as Exiobase does not provide a carbon emission factor for green buildings.** We note that Exiobase provides a range of very specific data, such as the carbon emission factors for different types of cement. Such data is not useful for investors, who often do not have access to such granular data – a green bond framework will typically identify that it will finance green buildings in an identified location, with no further information. We believe this highlights a potential gap between the data provided for green bonds, and the usefulness of available databases used to assess that data.

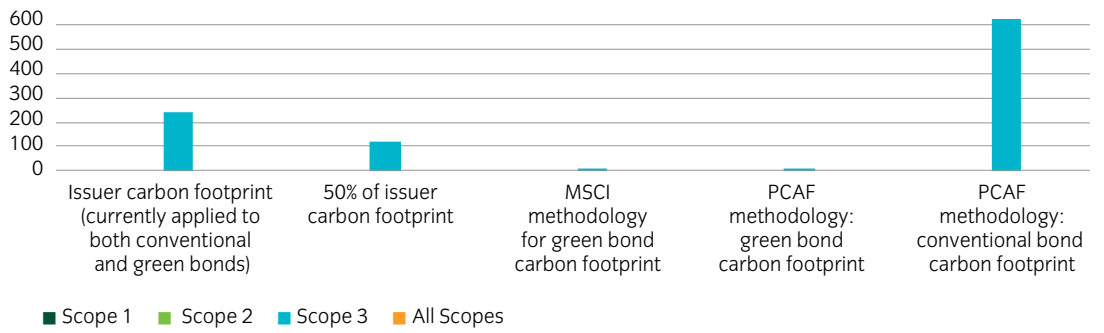
Figure 3: Vonovia carbon footprint[9]



Banking sector example: De Volksbank – highlighting the need for a different approach to financial services

- **Most of De Volksbank's emissions, as is typical for banks, are its financed emissions and are categorised as Scope 3.**
- **For Scope 1 and 2 emissions, estimations produce higher carbon footprints for the bank's green bonds then the bank itself.** This is because the emissions of the projects financed by the green bonds are higher than the (very low) Scope 1 and 2 emissions of the bank. This highlights that for bank issuers, Scope 3 emissions are a more appropriate comparison for a green bond's estimated emissions. For De Volksbank, therefore, estimated emissions produce a significant reduction versus the issuer's Scope 3 emissions.
- **Insight's methodology is inapplicable as Exiobase does not provide a carbon emission factor for green buildings,** as noted above for the Vonovia case study.

Figure 4: De Volksbank carbon footprint[10]



[9,10] Source: Bloomberg and Insight analysis.

CONCLUSIONS AND NEXT STEPS

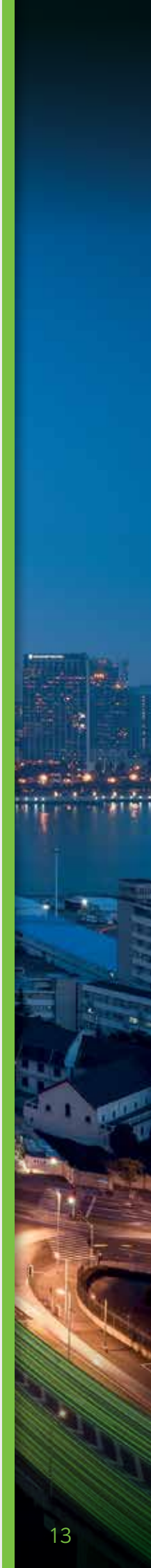
An effective estimation methodology for green bonds' carbon footprints is important to ensure comparable data and transparency of the financed emissions of a company for stakeholders. A standardised approach, with sufficient coverage, for understanding green bond financed emissions will lead to clear benefits for investors, issuers and policymakers pursuing wider sustainability objectives.

However, the lack of data available in post-issuance reporting for green bonds today highlights that such an approach is yet to be established. The methodologies widely used today introduce and apply different assumptions, leading to significant divergence. Insight encourages issuers to disclose the carbon footprint associated with projects financed by green bonds using widely accepted industry standards. **We believe this would be best achieved by an update to the ICMA Green Bond Principles guidance to issuers.**

In the absence of widespread reported carbon footprint data of green bonds by issuers, an estimation approach is required. The widely used estimation approaches discussed in this paper incorporate trade-offs between operational simplicity and specificity. Insight proposes an estimation methodology that applies the PCAF recommendations using agreed-upon carbon emission factors, and to support this, we would recommend the dissemination of key data points used in assumptions to support industry-wide agreement on the way forward. Key data include easily accessible carbon emission factors that can be applied at scale to estimations within fixed income portfolios. **We are seeking to encourage collaborative industry groups to agree and establish a standard: this may mean further work on the PCAF standard so that it can be practically applied, or updating the GHG Protocol.**

Until a clear standard is agreed and established, Insight is considering complementing our current carbon-footprint reporting with an estimation of the carbon footprint of green bonds for funds targeting impact bond allocations. In the absence of agreed estimation methodologies and easily accessible data, the simplest approach is to apply a percentage reduction of an issuer's carbon emissions, but a robust rationale for a specific reduction would need to be developed.

We believe, however, that the perfect should not be the enemy of the good. While progress is needed on the methodologies applied, in our view, they still more accurately reflect the reality of green bonds' carbon footprints and their implications for how investors view the asset class, and relevant issuers' conventional debt. We would therefore urge the industry to proceed with seeking to estimate green bonds' carbon footprints, even as we work together to refine and standardise exactly how we do so.



IMPORTANT INFORMATION

The information contained within this document is solely for educational and information purposes. The case studies published herein are purely to demonstrate the divergence arising from the application of different estimation methodologies and are not intended to be relied upon. Information concerning environmental, social and governance (ESG) and/or sustainability matters is dynamic and is subject to continuous change and, therefore, the information, opinions, views and statements contained in this document are subject to change, without notice to you. Whilst we believe that the information is reliable and correct as at the date of writing, we do not provide any guarantee, representation, warranty or other assurance whatsoever with respect to the information (including, as to its accuracy or completeness or that it is fit for any particular purpose). We are not soliciting any action from you based on the information contained herein and any reliance on the information is at your own risk. Any descriptions of internal processes or methodologies in this document (if any) are applied in accordance with our investment mandate and legal and regulatory requirements (as the case may be) and are subject to change.

RISK DISCLOSURES

Past performance is not indicative of future results. Investment in any strategy involves a risk of loss which may partly be due to exchange rate fluctuations.

The performance results shown, whether net or gross of investment management fees, reflect the reinvestment of dividends and/or income and other earnings. Any gross of fees performance does not include fees, taxes and charges and these can have a material detrimental effect on the performance of an investment. Taxes and certain charges, such as currency conversion charges may depend on the individual situation of each investor and are subject to change in future.

Any target performance aims are not a guarantee, may not be achieved and a capital loss may occur. The scenarios presented are an estimate of future performance based on evidence from the past on how the value of this investment varies over time, and/or prevailing market conditions and are not an exact indicator. They are speculative in nature and are only an estimate. What you will get will vary depending on how the market performs and how long you keep the investment/product. Strategies which have a higher performance aim generally take more risk to achieve this and so have a greater potential for the returns to be significantly different than expected.

Any projections or forecasts contained herein are based upon certain assumptions considered reasonable. Projections are speculative in nature and some or all of the assumptions underlying the projections may not materialize or vary significantly from the actual results. Accordingly, the projections are only an estimate.

Portfolio holdings are subject to change, for information only and are not investment recommendations.

ASSOCIATED INVESTMENT RISKS

ESG

Investment type: The application and overall influence of ESG approaches may differ, potentially materially, across asset classes, geographies, sectors, specific investments or portfolios due to the nature of the specific securities and instruments available, the wide range of ESG factors which may be applied and ESG industry practices applicable in a particular investable universe.

Integration: The integration of ESG factors refers to the inclusion of ESG risk factors alongside financial risk factors in investment analysis and research to judge the fair value of a particular investment and may also include the monitoring and reporting of such risks within a portfolio. Integrating ESG factors in this way will not typically restrict the potential investable universe, but rather aims to ensure that relevant and material ESG risks are taken into account by analysts and/or portfolio managers in their decision-making, alongside other relevant and material financial risks.

Ratings: The use and influence of our ESG ratings in specific investment strategies will vary, potentially significantly, depending on a number of factors including the nature of the asset class and the structure of the investment mandate involved. For an investment portfolio with a financial objective, and without specific ESG or sustainability objectives, a high or low ESG rating may not automatically lead to a buy or sell decision: the rating will be one factor among others that may help a portfolio manager in evaluating potential investments consistently.

Engagement activity: The applicability of Insight firm level ESG engagement activity and the outcomes of this activity relating to buy, hold and sell decisions made within specific investment strategies will vary, potentially significantly, depending on the nature of the asset class and the structure of the investment mandate involved.

Reporting: The ESG approach shown is indicative and there is no guarantee that the specific approach will be applied across the whole portfolio.

Performance/quality: The influence of ESG criteria on the overall risk and return characteristics of a portfolio is likely to vary over time depending on the investment universe, investment strategy and objective and the influence of ESG factors directly applicable on valuations which will vary over time.

Costs: The costs described will have an impact on the amount of the investment and expected returns.

Forward looking commitments and related targets: Where we are required to provide details of forward-looking targets in line with commitments to external organisations, e.g. Net Zero Asset Managers Initiative, these goals are aspirational and defined to the extent that we are able and in accordance with the third party guidance provided. As such we do not guarantee that we will meet them in whole or in part or that the guidance will not evolve over time. Assumptions will vary, but include whether the investable universe evolves to make suitable investments available to us over time and the approval of our clients to allow us to align their assets with goals in the context of the implications for their investments and issues such as their fiduciary duty to beneficiaries.

Insight applies a wide range of customised ESG criteria to mandates which are tailored to reflect individual client requirements. Individual investor experience will vary depending on the investment strategy, investment objectives and the specific ESG criteria applicable to a Fund or portfolio. Please refer to the investment management agreement or offering documents such as the prospectus, Key Investor Information Document (KIID) or the latest Report and Accounts which can be found at www.insightinvestment.com and where applicable information in the following link for mandates in scope of certain EU sustainability regulations https://www.insightinvestment.com/regulatory-home/sustainability-regulations/; alternatively, speak to your main point of contact in order to obtain details of specific ESG parameters applicable to your investment.

Fixed income

Where the portfolio holds over 35% of its net asset value in securities of one governmental issuer, the value of the portfolio may be profoundly affected if one or more of these issuers fails to meet its obligations or suffers a ratings downgrade.

A credit default swap (CDS) provides a measure of protection against defaults of debt issuers but there is no assurance their use will be effective or will have the desired result.

The issuer of a debt security may not pay income or repay capital to the bondholder when due.

Derivatives may be used to generate returns as well as to reduce costs and/or the overall risk of the portfolio. Using derivatives can involve a higher level of risk. A small movement in the price of an underlying investment may result in a disproportionately large movement in the price of the derivative investment.

Investments in emerging markets can be less liquid and riskier than more developed markets and difficulties in accounting, dealing, settlement and custody may arise.

Investments in bonds are affected by interest rates and inflation trends which may affect the value of the portfolio.

Where high yield instruments are held, their low credit rating indicates a greater risk of default, which would affect the value of the portfolio.

The investment manager may invest in instruments which can be difficult to sell when markets are stressed.

Exposure to international markets means exposure to changes in currency rates which could affect the value of the portfolio.

Where leverage is used as part of the management of the portfolio through the use of swaps and other derivative instruments, this can increase the overall volatility. While leverage presents opportunities for increasing total returns, it has the effect of potentially increasing losses as well. Any event that adversely affects the value of an investment would be magnified to the extent that leverage is employed by the portfolio. Any losses would therefore be greater than if leverage were not employed.

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