Current carbon impact measurement methods in the Dutch financial sector

Description of the current methods for measuring the CO_2e impact of relevant financing and investments

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Content

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Introduction

The Paris Agreement and the role of the financial sector

In order to reduce the most harmful effects of climate change, it is important to limit global warming to less than two degrees Celsius by drastically reducing greenhouse gas (hereinafter: CO_2e) emissions. On the basis of the Paris Climate Agreement (hereinafter: the Paris Agreement), the Netherlands has established in its Climate Act that by 2030, CO_2e emissions in our country must be reduced by 49% compared to 1990, to eventually reach a reduction of 95% by 2050[1]. The role of the Dutch financial sector in combating climate change should not be underestimated: through financing and investments, it can impact the CO_2e emissions of the real economy. An important instrument in this respect is measuring the CO_2e emissions of its (potential) investment and credit portfolios. In the financial world, various measuring methods are circulating, which can result in challenges with regard to the comparability of the outcomes.

Therefore, in developing these CO_2e impact measurement methods, financial institutions cooperate greatly. Internationally, Dutch financial institutions have also played an important role in the development and standardisation of these methods.

The commitment of the Dutch financial sector

In 2019, 53 financial institutions agreed to report on the CO_2e impact of their relevant financing and investments in *The Financial Sector Commitment* (hereinafter: the Commitment) from the 2020 financial year onwards. In addition, by 2022 at the latest, they will have action plans in place explaining the steps they are taking for all of their relevant financing and investments in order to contribute to the goals of the Paris Agreement. This could be a combination of approaches, including CO_2e reduction targets for the portfolio where possible, financing of CO_2e reduction projects and engagement.

Objective of this report

This report describes the current status of measuring CO_2e impact in the financial sector. In this respect, CO_2e impact can refer to both CO_2e emissions and CO_2e intensity.

The report provides a brief description of the main initiatives, methods and indicators used by financial institutions to measure CO_2e impact and the differences between them. This report does not provide an overview of other initiatives in the field of climate-related measurement methods, such as those relating to climate risks or engagement.

Summary

Management summary

In order to effectively manage the climate impact of financial institutions, gaining insight into the CO_2e contribution of financing and investments is the first step. More than half of the financial institutions that have signed the Commitment already report to a greater or lesser extent on the CO_2e impact of their relevant financing and investments.

For example, there are already several initiatives aimed at measuring, managing and reporting CO_2e, of which the most important focus on the methods of the Partnership for Carbon Accounting Financials (PCAF)[2] and the Paris Agreement Capital Transition Assessment (PACTA) method[3]. Dutch financial institutions have played an important role in the development of these two international standards. Although most financial institutions use the PCAF method, both methods can be used complementarily; however, the purposes for which each are used differs.

The PCAF method is aimed at measuring CO_2e per type of asset and the PACTA method is sector-specific and aimed at measuring the extent to which the technology mix and emissions of these sectors are in line with the Paris Agreement.

At portfolio level, for example, the PCAF method is used as an indicator for the absolute CO_2e footprint and the PACTA method for the CO_2e intensity. These indicators provide different insights and can therefore be used side-by-side.

However, there are a number of challenges for measuring and managing CO_2e impact :

- **Methodological differences between and within CO_2e measurement methods:** Different methods offer different perspectives on CO_2e impact. The methods differ in their application of indicators, attribution systems, the scope of measured emissions and standardisation schemes.
- **Limited data quality and data availability:** Financial institutions use data suppliers that collect data (often based on estimates) from a large number of companies to determine the CO_2e impact of their portfolios. The availability of this data is delayed and the coverage and quality of the data varies greatly per sector and per asset class. There are also differences in the estimates of CO_2e emissions between data suppliers.
- **Efforts are not always reflected in the CO_2e impact**: The results of management instruments such as engagement are often only visible in the CO_2e impact after a period of time. This is because, in order to impact the real economy, financial institutions can choose to include or keep CO_2e-intensive assets in their portfolios and encourage companies to reduce their CO_2e intensity through, for example, engagement. The results of these efforts are often only visible in the CO_2e impact after a few years.

Current climate initiatives and measurement methods in the Dutch financial sector

Increasing demand for CO_2e information

Stakeholders are increasingly asking financial institutions to report on the climate impact of relevant financing and investments, focusing in particular on the CO_2e impact:

The Task Force on Climate-related Financial Disclosures (TCFD) asks asset owners and asset managers to report on the CO_2e impact of their investment and loan portfolios in order to better assess the impact of climate change on business operations.

Other initiatives, such as the *Principles for Responsible Banking* (PRB) and the *Carbon Disclosure Project* (CDP), also require participating institutions to be transparent about the CO_2e impact of their managed portfolios.

At the European level, both the consultation document of the update of the *Non-Financial Reporting Directive* (NFRD)[22] and the consultation document of the *Sustainable Finance Disclosure Regulation* (SFDR) include concrete indicators for financial institutions on the basis of which they must report on the CO_2e impact.

Dutch financial institutions play an important role in several leading international initiatives

Financial institutions participate in a wide range of activities to reduce the negative climate impact of financing and investments. This report focuses in particular on initiatives aimed at measuring financed CO_2e emissions and setting targets in this area.

Several Dutch financial institutions have been developing methodologies for measuring CO_2e emissions and setting targets for some time now; as mentioned above, they play an important role in various international initiatives such as PCAF and PACTA.

Measuring is important but complex

In order to effectively manage the climate impact of financial institutions, making the CO_2e contribution of financing and investments measurable is essential. In recent years, many steps have been taken in the development of such methodologies, in addition to which increasing attention has been paid to harmonisation between these initiatives.

Measuring the CO_2e contribution of financing and investments is a complex task. This CO_2e contribution is not measured directly by financial institutions, but allocated, whereby a share of the CO_2e emissions of the assets in the financing or investment portfolio is attributed to the financial institution. Limited availability of data on the CO_2e emissions of underlying assets is a major challenge in this respect. In order to effectively manage CO_2e impact, it is necessary to gain insight into these emissions. There are still steps to be taken in this area.

Many financial institutions report the CO_2e impact based on methods developed by external initiatives, or with in-house-developed climate impact systems that are often inspired by such external initiatives. An overview of current measurement methods and initiatives is presented on pages 7 and 8.

Simplified overview of a CO_2e calculation for financial institutions

Calculating CO_2e emissions from financing and investments (example based on PCAF)

Simplified, CO_2e emissions from financing and investments are calculated by allocating a share of the CO_2e emissions of the financed activity to the financing or investment. This can be done in several ways.

1 CO_2e emissions of an activity	×	2 Attribution factor	=	Financed CO_2e emissions
1. CO_2e emission data of an activity Financial institutions often buy CO_2e data from data suppliers. Data suppliers use sources such as the CDP[9] and annual reports to collect CO_2e data. The availability of CO_2e data is often still limited. Of the companies included in the MSCI World Index (approximately 60% of the global market capitalisation), just under half report CO_2e emissions[11]. If data is not available at company level, data suppliers will estimate emissions.		**2. Attribution factor:** Attributing CO_2e emissions to a financial institution There are various methods for allocating CO_2e to financing or investments. Internationally, attribution for investments often occurs based on market capitalisation. Many data suppliers also calculate the CO_2e emissions of portfolios via market capitalisation. In the consultation document of the SFDR regulations, enterprise value (sum of equity and debt based on current value) is used as an attribution method. The PCAF method also requires institutions to apply attribution based on enterprise value in order to mitigate the risk of double counting corporate bonds and loans.		**3. Financed CO_2e emissions (normalised)** Due to attribution based on enterprise value or market capitalisation, the modelled CO_2e emissions depend on market fluctuations. In order to compare the development of CO_2e emissions between different time periods, normalization can be used to isolate market movements in order to reveal the underlying CO_2e trend.

There are many (inter)national developments with regard to CO_2e impact measurement methods

An overview of initiatives aimed at measuring and harmonising the financed CO_2e emissions is provided on the right. A distinction can be made between initiatives that are primarily focused on:

- Measuring CO_2e emissions from portfolios (e.g. PCAF);
- Measuring the extent to which portfolios are in line with the Paris Agreement (e.g. PACTA and SBT);
- Sector-specific measurement methods including transition paths based on scenarios;
- Testing and harmonising different measurement methods, such as the Institutional Investors Group for Climate Change (IIGCC) and the UN-Convened Net-Zero Asset Owner Alliance.

These initiatives often use each other's work and are frequently updated. For example, the recently published draft version of *Financial Sector - Science Based Target Guidance* uses both PCAF and PACTA. This creates a certain degree of harmonisation between initiatives.

The PCAF and PACTA methods are already applied in the Netherlands and internationally by a large number of institutions. This report therefore focuses on PCAF and PACTA as CO_2e impact measurement methods. As mentioned above, these methods can be used complementarily.

Overview of measurement oriented initiatives

Name	Description	Focus on: CO_2e emissions *(backward looking)*	Focus on: Decarbonisation *(forward looking)*
Initiatives aimed at developing measurement methods on CO_2e impact			
Partnership for Carbon Accounting Financials (PCAF)[2]	A harmonised standard to measure the CO_2e emissions of different types of assets.	✔	✔ (in development)
Paris Agreement Capital Transition Assessment (PACTA)[3]	A method for measuring whether financing and investments are in line with transition paths aligned with the Paris Agreement.		✔
Science Based Targets for Financial Institutions (SBT)[4]	A method to develop objectives for relevant financing and investments in line with the Paris Agreement.		✔ (in development)
Initiatives aimed at developing sector-specific measurement methods on CO_2e impact			
Poseidon Principles[7]	A method for measuring the alignment of shipping portfolios with different decarbonisation scenarios.		✔
Carbon Risk Real Estate Monitor tool[8]	A method for measuring the science-based decarbonisation trajectories for European commercial real estate portfolios.		✔
Initiatives aimed at testing and harmonising measurement methods			
IIGCC Paris Aligned Investment Initiative[5]	Initiative to identify methods to help align portfolios based on the objectives of the Paris Agreement.		✔ (in development)
UN-Convened Net-Zero Asset Owner Alliance[6]	An initiative to bring the emissions of portfolios to 'net-zero' by 2050, including the measurement of these emissions.		✔ (in development)

The above list is not exhaustive but includes the main methods used by Dutch financial institutions for measuring and setting CO_2e impact targets.

There are several indicators for measuring CO_2e impact

Various indicators exist for measuring CO_2e impact. These indicators provide different insights and can be used complementarily. The main differences are:

— **Type of CO_2e indicator: absolute versus relative emissions**
Absolute CO_2e emissions are the actual or total emissions. Relative emissions are emissions per euro (or an alternative unit). Absolute emissions provide insight into the contribution of portfolios to climate change, while relative emissions provide insight into the efficiency of portfolios.

— **Difference in perspective of the CO_2e indicator:**
There are indicators for (i) CO_2e emissions and the efficiency of portfolios and (ii) the efficiency of financed activities. PCAF measures the absolute emissions and efficiency of portfolios through the carbon footprint. PACTA looks at the efficiency of financed activities per sector and compares them with different transition scenarios in order to determine the degree of alignment with the Paris Agreement.

— **Difference in scope of CO_2e measurements**
The emissions of financial institutions are calculated based on the perspective of the financed activity, with scope 1 including the direct emissions of the activity, scope 2 the indirect emissions from purchased electricity and heat, and scope 3 the other indirect emissions from the value chain (e.g. emissions from suppliers). Many financial institutions calculate the CO_2e impact on the basis of scope 1 and 2 emissions. The availability and quality of data for scope 3 is still limited.

The PCAF and PACTA methods are described in more detail on pages 13-16.

	Indicators of CO_2e impact	Description	Indicator	Recommended by*	Part of	
	Indicators of CO_2e emissions from portfolios				**PCAF**	**PACTA**
Carbon intensity indicators	Total/absolute CO_2e emissions	Total CO_2e footprint of the portfolio	CO_2e	● ●	✔	
	CO_2e footprint	Normalised CO_2e footprint per euro invested	CO_2e / € invested	● ●	✔	
	CO_2e intensity	Volume of CO_2e emissions per euro revenue	CO_2e / € revenue of companies in which invested	● ●		
	CO_2e intensity by portfolio weight	CO_2e intensity by portfolio weight	CO_2e / € turnover of companies in which invested	● ● ●		
	CO_2e intensity by portfolio weight (sector-specific)	Sector-specific indicators of financed activities	CO_2e / MWh CO_2e / km CO_2e / m^2 CO_2e / tonne …			✔

** The TCFD, the NFRD and the SFDR provide indicators for financial institutions to be able to report, among other things, CO_2e impact. There are currently no prescribed indicators on CO_2e impact for financial institutions.*

● TCFD recommendations
● NFRD (supplement on reporting climate-related information)
● SFDR (consultation)

More than half of financial institutions report the CO_2e impact

The current status of reporting

The 53 financial institutions that signed the Commitment are committed to reporting the CO_2e impact of their relevant financing and investments from the 2020 fiscal year onwards. Based on public information, it appears that a small majority already reported on the CO_2e impact in 2019, with PCAF being the most referenced method.

Coverage of the reports

There is still a lot of variation between these institutions with regard to the extent to which their reports provide insight into the CO_2e impact of all their relevant financing and investments. In addition, the reports of institutions that have been reporting for a longer period of time are often more complete than those that have only recently started to do so.

The scope of reporting usually concerns listed shares. Government bonds, private equity and debt, mortgages and real estate are often not yet included in the CO_2e reporting.

The most commonly used method

Around 68% of the institutions that already report on CO_2e impact do so on the basis of the PCAF method. Not all institutions that report on the basis of PCAF fully comply with the recommendations of PCAF. For example, some institutions use a different attribution system or other normalisation method, resulting in difficulties in the comparability between PCAF-based outcomes between institutions.

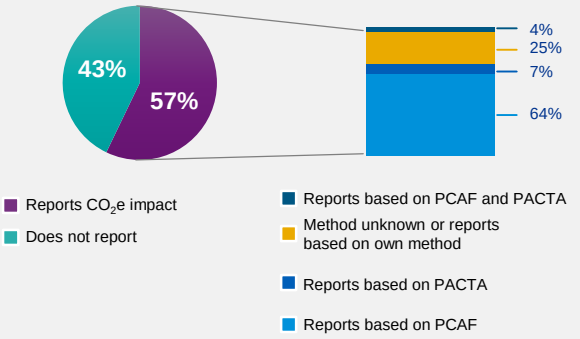
PCAF is used by all types of financial institutions: pension funds, banks, asset managers and insurers.

The Dutch financial institutions that have joined PACTA are ING and ABN AMRO. Internationally, PACTA has a lot of support among 17 international banks such as Barclays, BBVA, BNP Paribas, Société Générale and UBS.

Indicators in reports

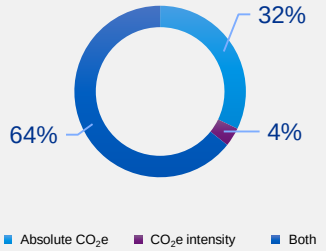
As indicated on the previous page, financial institutions use different types of indicators to measure CO_2e impact. Most financial institutions choose a combination of absolute and relative indicators.

Report of CO_2e impact by financial institutions*



Source: KPMG.

Type of CO_2e indicators used by reporting financial institutions*



Source: KPMG.

**The above data is based on annual reports and public sources such as the PCAF website and contains estimates and assumptions (e.g. for international institutions for which the Climate Commitment is signed only for Dutch activities).*

Moving towards better information for reporting of and steering on CO_2e impact

1. Efforts are not always reflected in the CO_2e impact

Through financing and investments, financial institutions can put pressure on the real economy to bring CO_2e emissions in line with the Paris Agreement. There are opportunities for managing the CO_2e impact of portfolios, using engagement, but also by divestment. The development of the CO_2e impact of the portfolios of financial institutions is therefore an important indicator of the success of their efforts, but this in itself can also be misleading.

If institutions manage the CO_2e impact by selling CO_2e-intensive assets, there is a sharp decline in CO_2e impact on paper, but no difference in the real economy.

That is why financial institutions can also choose to increase exposure to CO_2e-intensive asset classes/sectors (e.g. homes built before 1950) in order to exert more influence. In the short term, this would result in an increase in the CO_2e impact, while in the longer term, the institution could make targeted efforts to reduce the CO_2e impact in the real economy through its portfolio.

When evaluating the development of the CO_2e impact of financial institutions, it is therefore always necessary to look at policies and steering instruments of these institutions in order to reach an accurate conclusion about the effectiveness of the policy.

2. Comparability of CO_2e levels between financial institutions still faces a number of challenges

Dutch financial institutions are striving for harmonisation and comparability of CO_2e emission measurement methods for better comparability of outcomes between financial institutions. At the moment, this comparability is limited, due to:

a. Methodological differences between and within CO_2e impact measurement methods

There are several measurement systems and the comparability between these methods is (still) limited. PCAF and PACTA offer different perspectives on the CO_2e impact of portfolios of financial institutions, and also use different indicators:

- Difference in **indicators**: There are various indicators for CO_2e impact. PCAF measures the absolute and relative CO_2e emissions of asset classes, while PACTA looks at sector-specific indicators in alignment with the Paris Agreement. These different indicators serve different purposes and can be used in a complementary way for effective measurement and of the CO_2e impact. However, as financial institutions do not report the same indicators, it is not possible to compare and aggregate CO_2e indicators between financial institutions.
- Difference in **attribution**: CO_2e emissions are allocated to investments and loans in different ways. There is currently no standard for attribution between CO_2e impact measurement methods, which limits the comparability of outcomes. For example, PCAF uses the enterprise value (sum of equity and debt based on current value) to attribute emissions to different types of assets; internationally, market capitalisation is often used. Other measurement methods, such as PACTA, use a different attribution method. There are also differences in attribution methods for other asset classes, such as government bonds.
- Difference in **normalisation**: Some institutions use normalisation to correct for the impact of fluctuations in the market capitalisation of companies in its portfolio on the CO_2e emissions[11, 12].
- Difference in **measured emissions**: Most financial institutions report the scope 1 and scope 2 emissions: the direct emissions of the activity and the indirect emissions from purchased electricity and heat. Increasingly, financial institutions are also asked to report the scope 3 emissions of relevant financing and investments, i.e. the other indirect emissions from the value chain. However, the availability of reliable asset-specific data at scope 3 level is still very limited and the risk of double counting of scope 3 emissions is high.

Moving towards better information for reporting of and steering on CO_2e impact

b. Limited data availability and quality

The availability and quality of data is essential for reliable outcomes and relevant insights for decision making. Data availability poses considerable challenges for a number of sectors and asset classes. Furthermore, there are significant differences between the estimation methods used by the various data suppliers:

- **Data availability**: Granular CO_2e data for a number of sectors and asset classes is often of poor quality or unavailable, making it difficult to get comparable results that are suitable for decision making and management. For example, CO_2e data on government loans from countries outside the EU is rarely available, which makes it difficult to calculate the CO_2e emissions of large fixed-income portfolios. The same applies to data availability for real estate, private equity, private debt and private loans. In the absence of sufficient data, institutions that apply PCAF can, for example, use the average emission intensity of sectors: instead of the actual asset-specific emissions, the average sector intensity is then monitored, which means that decarbonisation efforts are not visible in the CO_2e impact of the institution[14].
- **Differences between data suppliers:** Financial institutions use data suppliers that provide carbon data on the CO_2e impact of financing and investments. If no data is available at company level, data suppliers estimate these emissions. Each supplier uses its own methodology to estimate emissions, often based on factors such as industry, production, number of employees, location and revenue. This leads to clear differences in estimates of CO_2e emissions between data providers[10, 12].
- **CO_2e data delay**: Data suppliers use data reported by companies in annual reports or to the CDP. Current data for the reporting year is usually available too late, so financial institutions use CO_2e data that is at least one year old. For government bonds, there is even a greater delay.

Appendices

1. PCAF & PACTA in more detail
2. Sources

Appendix 1: PCAF has 79 participating institutions with a total of over $13.8 trillion in assets

Context

The PCAF initiative was launched in 2015 in the run-up to the COP21[2]. The aim of the initiative is to develop a harmonised standard to measure CO_2e emissions from financing and investments. PCAF is based on the *Greenhouse Gas Protocol of the World Resource Institute* (WRI) and the *World Business Council for Sustainable Development* (WBCSD).

Nineteen Dutch financial institutions are affiliated with PCAF*. The method has received international attention and is now also applied in the US and Canada. PCAF has 79 participating institutions with a total of more than $13.8 trillion in assets[13,15].

Scope

PCAF is a standard used to measure the direct and indirect emissions of financing and investments. PCAF has developed methods to calculate CO_2e emissions for a number of asset classes.

PCAF enables institutions to calculate both the total CO_2e emissions (absolute CO_2e emissions) and the CO_2e footprint (relative CO_2e emissions) of portfolios.

PCAF contains a detailed description for:

- Government bonds;
- Listed shares;
- Project financing;
- Mortgages;
- Commercial real estate;
- Corporate bonds;
- Corporate loans/SME loans;
- Indirect investments;
- Loans for motor vehicles.

By aggregating the financed emissions over these asset classes, PCAF offers a way to calculate the CO_2e impact of an entire investment or loan portfolio.

Further development

The PCAF methodology is continuously being developed, further specifying the methods for current asset classes, developing those for new asset classes and working towards further harmonisation.

In addition, PCAF is working on improving data availability and quality and on an approach to develop (science-based) targets in line with the Paris Agreement, in collaboration with the RMI Center for Climate-Aligned Finance[11].

*ASR, ABN AMRO, Achmea, ACTIAM, APG, ASN Bank, De Volksbank, BNG Bank, FMO, MN, NIBC Holding NV, NN Group, NWB, Rabobank, Robeco, van Landschot Kempen, Triodos Bank, PME, PMT.

Example: CO_2e emissions of the loan book

ABN AMRO CO_2e emissions from the loan book

	GHG Emissions (kton)		
	2019	2018	Delta
Agriculture (A)	833	1,012	(179)
Minerals (B)	3,016	3,300	(284)
Industry (C)	3,039	3,417	(378)
Utilities (D)	815	767	48
Water distribution (E)	142	136	6
Construction (F)	142	197	(55)
Retail (G)	7,204	7,691	(487)
Transport (H)	6,762	7,366	(604)
Leisure (I)	38	36	2
Information and communication (J)	221	227	(6)
Financial Services (K)[1]	18	20	(2)
Real estate (L)[1]	120	158	(38)
Scientific and technical acitivities (M)	79	57	22
Administrative services (N)	349	376	(27)
Regional administration (O)	101	116	(14)
Education (P)	21	25	(3)
Healthcare (Q)	139	184	(45)
Recreation (R)	45	51	(6)
Other services (S)	13	28	(15)
Activities of households as employers (T)	0	0	–
Extraterritorial organisations (U)[1]	4	2	1
No sector	2,010	1,155	855
Total kton CO_2	**25,111**	**26,319**	**(1,208)**

[1] Excluding commercial real estate and real estate for own use by clients.

Source: ABN AMRO Non-financial data & Engagement 2019[16]

- ABN AMRO has been reporting on the CO_2e impact of the entire loan book at NACE sector level since 2018.
- The calculation is based on:
  - Average CO_2e emissions by NACE sector;
  - Loans by NACE sector.

Appendix 1: Example of the application of PCAF

ABP: Using PCAF to measure the CO_2e emissions of the investment portfolio

PCAF at ABP[17,18]

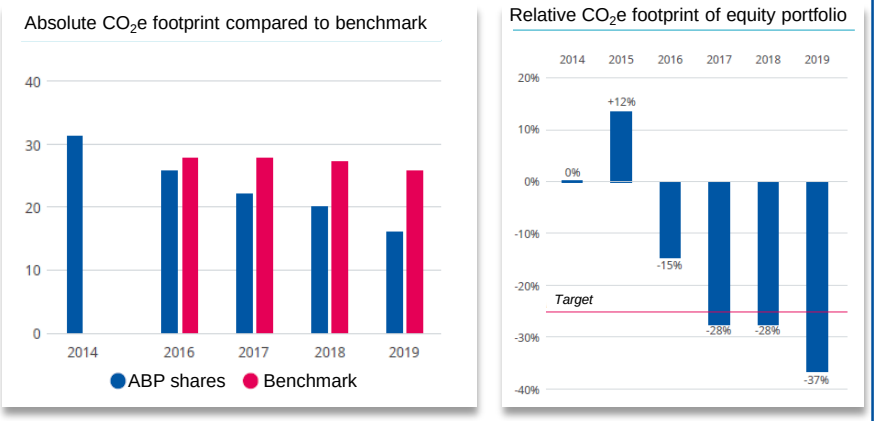
Pension fund ABP has disclosed the CO_2e emissions of its investment portfolio since 2015. ABP calculates the emissions from investments in equities and will also report on other asset classes, such as bonds and real estate in the future[17]. Their analysis gives an impression of the aggregated absolute CO_2e emissions of all equity investments.

Highlight: Trend analysis CO_2e footprint and sectors

APB focuses on reducing CO_2e emissions and uses the relative CO_2e emissions for this purpose. ABP can analyse trends in CO_2e indicators, such as:

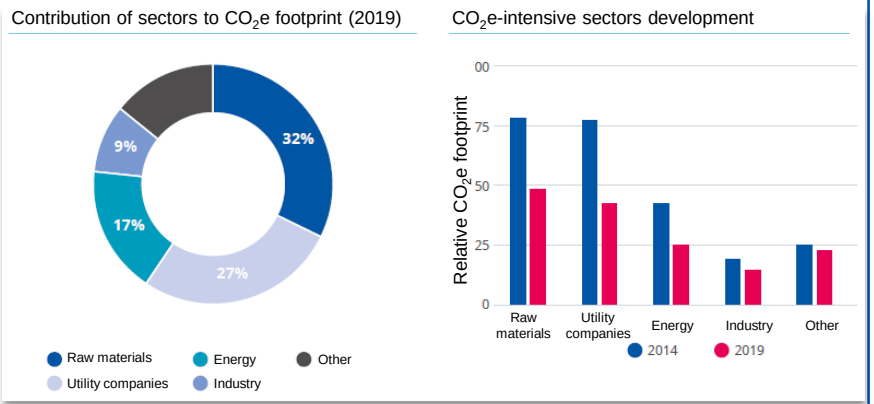
- Absolute CO_2e emissions compared to a benchmark;
- Which sectors contribute the most to CO_2e emissions;
- Reduction in relative CO_2e emissions of companies per euro invested, which can be attributed to reduction of emissions by companies in the portfolio;
- Developments in relative CO_2e footprint in CO_2e-intensive sectors.

ABP absolute and relative CO_2e footprint of equity portfolio



Source: ABP Duurzaam Beleggen 2019

ABP developments by sector



Source: ABP Duurzaam Beleggen 2019

Appendix 1: PACTA has 17 participating international banks with more than €15 trillion in assets

Context

The Paris Agreement Capital Transition Assessment (PACTA) method has been developed by the 2° Investing Initiative[19]. This method focuses on the technological shifts required in CO_2e-intensive sectors to limit global warming to 2°C. It assesses a financial institution's investments in various technologies - directly or indirectly - against forecasts of how this technology mix will need to change in order to keep global warming well below 2°C. PACTA uses detailed asset-specific production and capacity data for this analysis. Internationally, PACTA has a lot of momentum. Since its launch in 2018, 17 international banks with more than €15 trillion in assets have adopted PACTA.

Scope

The PACTA method does not measure the CO_2e intensity of a portfolio, such as PCAF, but the CO_2e intensity of activities in the portfolio compared to the sector and with a <2°C climate scenario.
PACTA covers the following sectors, which are responsible for approximately 75% of the global direct and indirect emissions[21]:

- Oil & gas;
- Coal;
- Electricity;
- Automobile;
- Steel;
- Cement;
- Shipping;
- Aviation.

For each sector, the technological changes needed to bring them in line with the Paris Agreement are made clear. CO_2e intensity is measured for each sector using a sector-specific indicator, for example:

- Electricity: CO_2e per unit of electricity generated;
- Automotive: CO_2e per km of automobile manufacturers' production mix.

The CO_2e intensity per sector is benchmarked with a climate scenario, such as an energy transition scenario of the International Energy Agency.

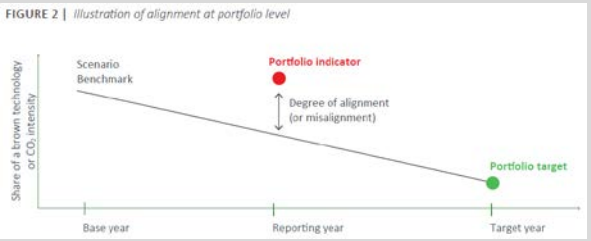
Further development

The PACTA method is currently being tested by a number of financial institutions, such as AXA, BNP Paribas, Barclays, Société Générale and, from the Netherlands, ING and ABN AMRO.

Meanwhile, PACTA continues to work on possible solutions for collecting consistent emission data at customer level.

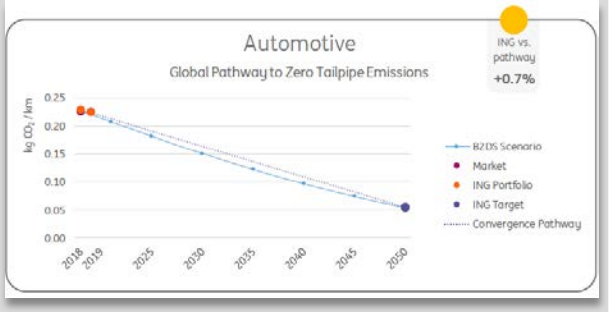
Example

Illustration of portfolio alignment



Source: Credit Portfolio Alignment[20]

ING automobile decarbonisation pathway



Source: ING Terra Progress Report 2020[21]

Appendix 1: Example of the application of PACTA

ING: PACTA to measure 'climate alignment' of portfolios in CO_2e-intensive sectors

PACTA at ING[21]

ING uses the 'Terra Approach', mainly based on the PACTA method and Science Based Target's Sectoral Decarbonisation Approach (SBTi SDA). Each sector has its own transition pathway or 'technology roadmap' to contribute to a low carbon world below two degrees of global warming by 2100.

Highlight: The Climate Alignment Dashboard

The Climate Alignment Dashboard (CAD) developed by ING shows how the CO_2e intensity of a sector is aligned with the objectives of the Paris Agreement and provides insight into:

- The **CO_2e intensity** per sector of the portfolio compared to the market and a relevant climate scenario;
- The **climate alignment target** by sector;
- The **decarbonisation pathway** by sector.

By benchmarking the performance of ING's investment portfolio with the market and with a climate scenario, insight is gained into how the portfolio can be further decarbonised and what ING's performance is in this area.

Methodological challenges

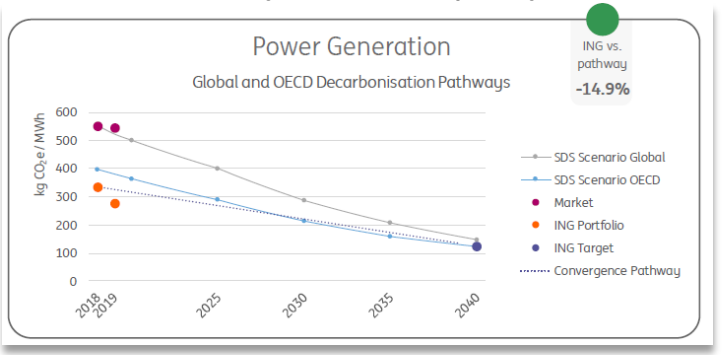
- Limited availability and reliability of data: PACTA works to improve the availability and reliability of data.

Terra sector-specific measurement methods, indicators and scenarios

Sector	Measurement methodology	Target-setting methodology	Scenario	Primary output	Reporting metric
Power generation	PACTA	PACTA	IEA (WEO) SDS 2018	Technology mix	kg CO_2e / MWh
Fossil fuels	ING portfolio / revenue segmentation[79]	2DII / Katowice Banks	IEA (WEO) SDS 2019	Absolute € O/S	Absolute € O/S
Commercial real estate (NL)	Delta Plan	Paris-proof method	Plan bureau voor de leefomgeving (PBL), derivative of the Paris Agreement	EPC label distribution/ estimated consumption data	kg CO_2 / m^2
Residential real estate (NL/DE)	PCAF	SDA (SBTi)	IEA (ETP) B2DS 2017	EPC label distribution/ estimated consumption data	kg CO_2 / m^2
Cement	PACTA	SDA (SBTi)	IEA (ETP) B2DS 2017	CO_2 intensity per unit of production	t CO_2 / t cement
Steel	PACTA	SDA (SBTi)	IEA (ETP) B2DS 2017	CO_2 intensity per unit of production	kg CO_2 / t Steel
Automotive	PACTA	PACTA	IEA (ETP) B2DS 2015 (retirement figures) & 2017	Technology mix	kg CO_2 / km
Aviation	PACTA	SDA (SBTi)	IEA (ETP) B2DS 2017	CO_2 intensity per passenger km	g CO_2 / pkm
Shipping	UMAS - FUSE / Poseidon Principles	Poseidon Principles	IMO 2050 ambition	CO_2 intensity per tonne nautical mile	kg CO_2 / tnm

Source: ING Terra Progress Report 2020

Electricity decarbonisation pathway



Source: ING Terra Progress Report 2020

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