

Financed emissions in practice: Navigating disclosure gaps and estimating impact

A guide to interpreting financed emissions in a data sparse environment

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Contents

Executive Summary	3
1. What are financed emissions, and how are they measured across financial institutions?	4
2. How complete and reliable is current corporate disclosure on financed emissions?	7
3. How can missing financed emissions be estimated?	10
4. What drives changes in financed emissions over time?	13
5. How can investors use financed emissions data?	17
Annex: Disclosure requirements across standards	20
References	21

Executive summary

Financed emissions are the share of greenhouse gas emissions that a financial institution is responsible for through its financing activities such as loans or investments (PCAF, 2020). Unlike companies in other sectors, which are exposed to climate risk through their own operations or supply chain, financial institutions are exposed through the companies and projects they finance. Understanding financed emissions therefore provides a similar type of insight into their risk profile and can inform strategic portfolio decisions.

The concept of financed emissions was formally recognised more than a decade ago. In 2011, these emissions were classified under Scope 3 Category 15 (Investments) of the Greenhouse Gas Protocol. However, practical application and reporting remained limited until the Partnership for Carbon Accounting Financials (PCAF) introduced its first attribution methodology in 2020 and expanded it in 2022 and 2025 (PCAF, 2025). Today, even as earlier initiatives and alliances¹ have lost prominence, many financial institutions still rely on these standards, which are increasingly embedded in regulatory requirements across jurisdictions.

Despite having become a central element of financial institutions' climate reporting, financed emissions accounting remains methodologically complex and the disclosure landscape fragmented. The metric depends on reported Scope 1, 2, and 3 emissions from portfolio companies and other exposures, which can be incomplete, volatile, and inconsistent across asset classes and geographies.

This creates a dual challenge. First, data gaps and methodological inconsistencies often make it difficult for financial institutions (data reporters) to disclose their financed emissions in a comparable way. Second, the same limitations reduce the reliability of the resulting data for their users, limiting meaningful interpretation for capital allocation decisions, climate risk assessment, or portfolio decarbonisation.

Against this backdrop, the paper follows the logical set of questions an investor or analyst confronts when reporting or using financed emissions data. It begins by clarifying how financed emissions are defined and calculated (*Section 1*), then reviews the current state of disclosure, highlighting data gaps and comparability challenges (*Section 2*). Moving from data reporter to data user, and recognising that disclosure is often incomplete, it outlines practical estimation approaches and their trade-offs (*Section 3*). For appropriate interpretation of trends in data, the paper decomposes changes in financed emissions over time to distinguish between portfolio reallocation, market effects, and underlying emissions trajectories (*Section 4*). Finally, it explores how financed emissions should be understood in the current reporting landscape and what can be done to make them more useful in practice (*Section 5*).

Key findings

- **Financed emissions data shows how financial institutions are structurally exposed to climate risk.**
For most financial institutions, these emissions account for on average 97% of reported Scope 1, 2 and 3 combined.
- **Whilst financed emissions disclosure rates have tripled, reporting remains limited and uneven.**
Only a third of large and medium-sized listed financial institutions report financed emissions, increasing from 10% in 2020 to roughly 35% in 2024.
- **Where reported financed emissions data is absent, estimation becomes unavoidable.**
Data users rely heavily on estimated data. Bottom-down methods provide the most transparent and consistent framework but require more granular data on asset allocation.
- **Reported changes often mask multiple underlying drivers.**
Movements in financed emissions may reflect market shifts or portfolio changes rather than genuine progress on decarbonisation, requiring careful interpretation.
- **Top level financed emissions disclosure alone is not enough.**
Without breakdowns by asset class, sector and scope, financed emissions offer limited insight into climate risk or progress towards decarbonisation target.
- **A single metric cannot capture all alignment considerations and must be interpreted alongside complementary indicators.**
When combined with metrics that capture both current exposures and future transition pathways, financed emissions become a far more robust tool for assessing portfolio alignment with the low-carbon transition.

¹ <https://www.unepfi.org/net-zero-banking/media/nzba-update-august-2025/>

1. What are financed emissions, and how are they measured across financial institutions?

Financial institutions typically have low operational emissions; however, this does not imply low exposure to climate-related risk. Their exposure to climate risk arises primarily through capital allocation rather than direct operations. Financed emissions capture the share of real-world greenhouse gas (GHG) emissions associated with lending and investment activities, linking financial activity to emissions generated by the companies and projects they support. While often discussed in the context of banks and asset managers, financed emissions are relevant across the financial system wherever capital is connected to economic activity².

1.1 Why are financed emissions a key metric for financial institutions and investors?

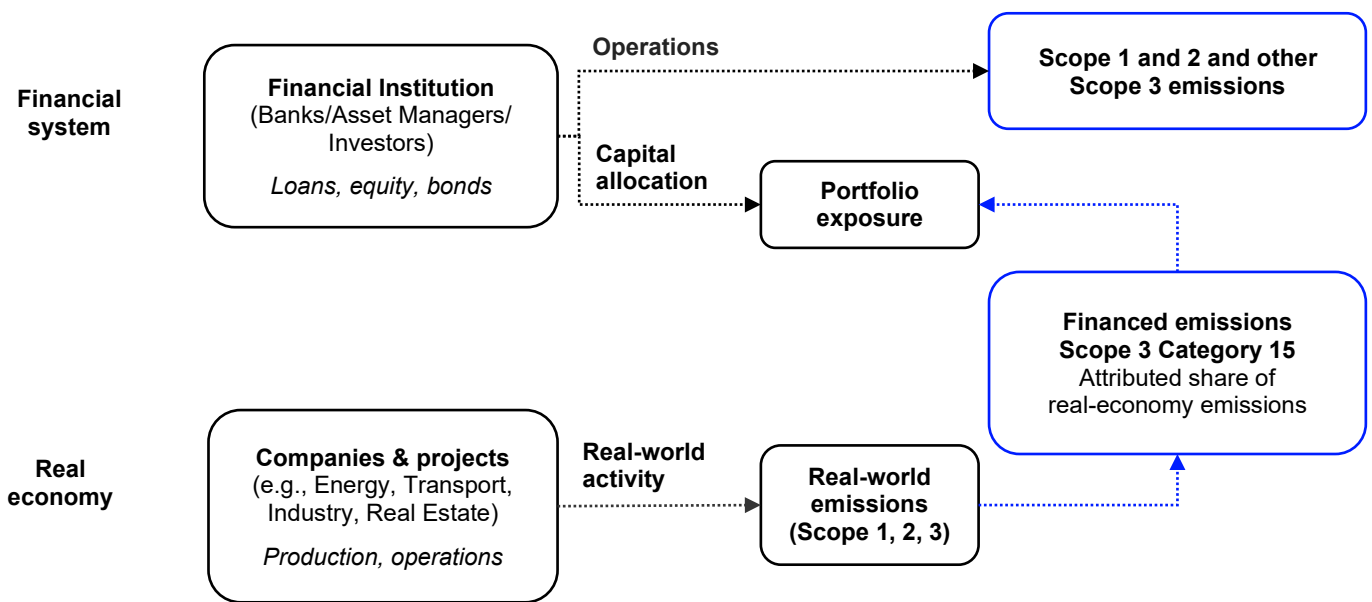
Classified under Scope 3 Category 15 (Investments) of the GHG Protocol, financed emissions capture the greenhouse gas emissions associated with assets financed through loans, investments and other forms of capital provision. When aggregated, these emissions reflect how real economy emissions translate into portfolio and balance sheet climate risk exposure.

- **For data reporters (i.e., financial institutions)**, financed emissions indicate exposure to climate-related risk arising from capital allocation decisions.³
- **For external data users**, including investors, financed emissions provide insight into the climate risk embedded in their own portfolios where these include financial sector exposures.

Across the financial sector, financed emissions account for approximately 97% of total reported emissions (Scope 1, 2 and 3 combined), based on the average emissions breakdown for the FTSE All-World Index (2018–2024).

Figure 1 shows how the financial system and the real economy are connected, and how financed emissions link capital allocation to portfolio and balance-sheet climate risk.

Figure 1: Financed emissions as the bridge between the financial system and the real economy



Source: LSEG, 2025.

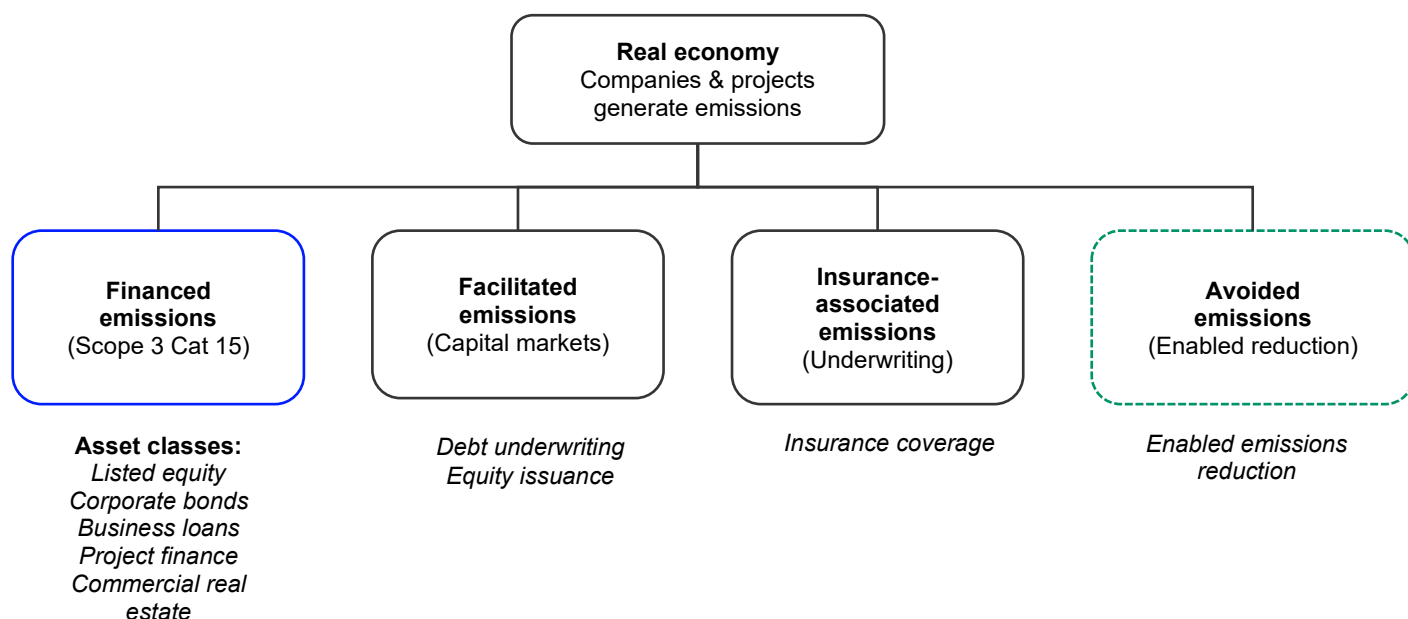
² The classification of financed emissions as Scope 1 or Scope 3 Category 15 depends on an organisation’s operational and ownership boundaries. For diversified or vertically integrated groups, emissions from majority-owned or operationally controlled entities are typically reported as Scope 1, while emissions associated with minority ownership stakes or non-controlled investments are captured under Scope 3 Category 15 financed emissions.

³ For companies outside the financial sector, Category 15 remains relevant where they hold ownership stakes or equity investments in other businesses, as these positions also carry attributed emissions under the GHG Protocol.

In addition to financed emissions, financial institutions may track other portfolio related emissions metrics that capture distinct ways in which financial activity is linked to real economy emissions. As shown in Figure 2, these metrics, which sit outside required Scope 3 reporting (see Annex), reflect different transmission channels between the financial system and the real economy.

- **Facilitated emissions** capture emissions associated with capital markets activities, such as underwriting debt and equity issuances. Unlike financed emissions, they relate to transactions enabled by the financial institutions rather than capital deployed on its own balance sheet.
- **Insurance-associated emissions** refer to emissions linked to underwriting insurance policies. By providing coverage, insurers can be a key enabler for the financing and operation of carbon intensive activities.
- **Avoided emissions** represent emissions reductions enabled by financing low-carbon technologies or projects, such as renewable energy or sustainable infrastructure. They are not specific to financial institutions and can be generated by any organisation that enables emissions reductions through its activities or investments. While not offset against financed emissions, they provide a complementary measure of positive climate impact.

Figure 2: Financial channels linking capital to real-economy emissions



Source: LSEG, 2025.

1.2 How are financed emissions calculated?

Financed emissions are calculated by attributing a share of a company's emissions to the financial institution based on its level of financial exposure. This method enables consistent portfolio level estimates and is applied across multiple asset types using the following formula:

$$\text{Financed Emissions} = \text{Attribution Factor} \times \text{Emissions of the Reference Boundary}$$

This approach, standardised by PCAF, attributes emissions based on the relevant boundary - whether a whole company, specific asset, or project - and multiplies this by the institution's share of financing. The table below summarises attribution methods across some major asset classes.

Table 1: Attribution methods and emissions boundaries by asset class

Asset class	Attribution method	Rational
Listed Equity & Corporate Bonds	Value of holding ÷ EVIC ⁴	Attributes emissions in proportion to the financial institution's (FI) ownership stake in the company.
Business Loans & Unlisted Equity	Outstanding loan or investment ÷ EVIC	Attributes emissions based on the FI's share of the borrower's total enterprise value.
Project Finance	Outstanding loan amount ÷ Total project value	Attributes emissions based on the FI's share of total project financing.
Commercial Real Estate	Loan amount ÷ Property value (or EVIC of property owner)	Attributes emissions based on the FI's share of the property value or owning entity.
Mortgages	Loan balance ÷ Property value	Attributes emissions based on the FI's share of the residential property value.
Motor Vehicle Loans	Loan amount ÷ Vehicle value	Attributes emissions based on the FI's share of the vehicle value using lifecycle-based emissions factors.
Sovereign Debt	FI exposure ÷ Total outstanding sovereign debt	Attributes emissions in proportion to the FI's exposure to a country's total sovereign debt.

Source: LSEG, 2025.

⁴ Enterprise value including cash (EVIC)

2. How complete and reliable is current corporate disclosure on financed emissions?

In theory, financed emissions should offer a reliable picture of where climate risk sits within a portfolio or an investment strategy, showing which assets are exposed and the scale of that exposure. In practice, this is not yet the case. Financial institutions typically report a single financed emissions figure for their entire portfolio or balance sheet, based on different scopes, levels of asset coverage and metrics, without providing sufficient transparency around these assumptions. As a result, the figures disclosed today largely reflect differences in data availability and reporting maturity across institutions, rather than underlying portfolio emissions and their associated risks.

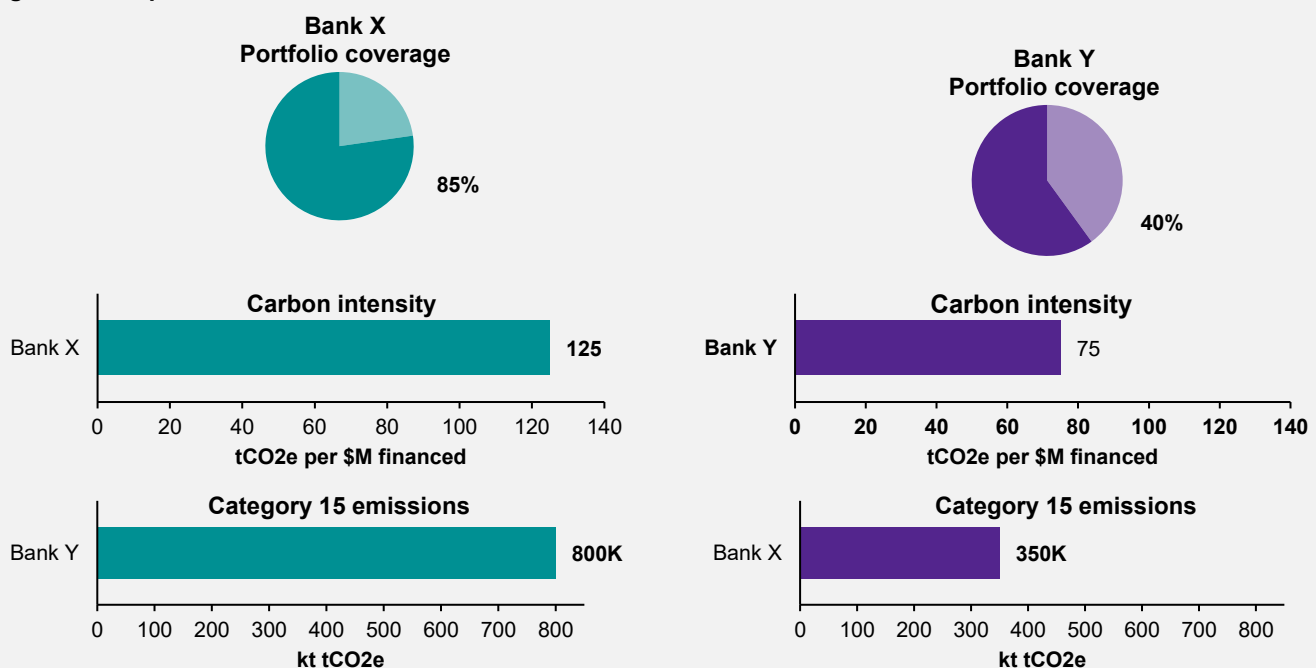
2.1 What information are financial institutions disclosing?

Despite increasing adoption of financed emissions disclosure (see Section 2.3), reported data diverges widely across financial institutions in terms of scope, coverage and methodology. These differences reflect variation in portfolio composition, data availability and reporting maturity, and they continue to limit comparability and their value for investors (GHG Protocol, 2011; PCAF, 2022a; University of Oxford, 2023). These differences are not merely theoretical and are illustrated in Box 1, which compares how two institutions disclose financed emissions in practice.

Box 1: Comparing two banks' financed emissions disclosures

Information	Bank X	Bank Y
Investees' scope of emissions covered	Reports Scope 1, 2, and partial Scope 3 for top five sectors	Reports only Scope 1 and 2; excludes Scope 3 entirely
Portfolio coverage	Covers 85% of assets, including listed equity, corporate loans, and commercial real estate	Covers only 40% of assets; excludes sovereign debt, private equity, and structured products
Metric type	Discloses both absolute (tCO ₂ e) and intensity (tCO ₂ e per \$M financed); uses multi-year EVIC avg	Reports only absolute emissions; attribution based on single-year EVIC
Reported carbon intensity	125 tCO ₂ e per \$M financed (energy portfolio only); down from 160 tCO ₂ e two years ago	75 tCO ₂ e per \$M financed (aggregate portfolio); lacks sector breakdown or trend data
Target transparency	Publishes interim 2030 targets by sector and tracks progress annually	States net-zero ambition, but no interim or sector-specific targets
Category 15 Emissions	800,000 tCO₂e	350,000 tCO₂e

Figure 3: Comparison of financed emissions disclosure between two banks



Source: LSEG, 2025. Theoretical example.

Investor implication:

Despite Bank Y reporting a lower overall carbon intensity, the lack of sector-specific granularity and Scope 3 inclusion limits meaningful comparison. Bank X's transparency enables investors to track decarbonisation progress and better assess transition risk exposure across high-emission sectors.

Key areas of variation in portfolio composition, data availability and reporting maturity include:

- **Scope of emissions reported** – Most institutions include Scope 1 and 2 emissions of financed entities, covering direct operations and purchased energy. However, Scope 3 emissions, often the largest share in key sectors such as energy, transport and agriculture, remain widely underreported (LSEG, 2024a). This underreporting can lead to systematic underestimation of climate risk exposure, making it harder for investors (as data users) to assess transition risks in carbon intensive portfolios. At the same time, this creates a structural challenge for financial institutions themselves, as their reported Scope 3 financed emissions are directly dependent on the completeness and quality of Scope 3 disclosures from the entities they finance (AEFR, 2025).
- **Portfolio coverage** – Disclosure has improved for listed equity and corporate loans but remains limited for sovereign debt, private equity, and structured finance, where data is sparse and methodologies are still evolving (PCAF, 2022a; ISSB, 2023). Data is more sparse for SMEs (small and medium sized entities) many of which may not do any climate reporting; and they will be a core component of bank loan books hence there is a significant reliance on estimation models. Incomplete asset class coverage can distort portfolio-level risk assessments and hinder meaningful comparison between financial institutions (University of Oxford, 2023).
- **Type of metrics reported** – Institutions may report absolute emissions (tCO₂e) to capture the total financed footprint, or monetary intensity metrics (e.g., tCO₂e per million USD invested) to reflect emissions relative to capital deployed. However, not all institutions report both, and attribution methods (such as EVIC versus book value) vary significantly (Granoff and Lee, 2024). This inconsistency can limit peer benchmarking and complicate the interpretation of decarbonisation targets and trends.
- **Disclosure of targets** – Some institutions publish detailed sector level targets and year-on-year progress, while others provide only high-level goals with limited quantification (ISSB, 2023; PCAF, 2022a). Without clear, measurable interim targets linked to reported data, it remains difficult to evaluate the credibility of climate commitments and the robustness of decarbonisation strategies.

Given this lack of harmonisation in disclosure practices, reported financed emissions data can produce inconsistent and sometimes misleading insights for data users. The immaturity and inconsistency of financial sector reporting is especially transparent when compared to Scope 3 disclosures of other industries (LSEG, 2024b).

2.2 Regulatory drivers: financed emissions as part of Scope 3 disclosure

Much of the divergence in financed emissions disclosure reflects the fact that, while financed emissions have been included in the GHG Protocol Scope 3 framework since 2011 (Category 15: investments), practical calculation and reporting only became feasible with the development of attribution methodologies.

Voluntary initiatives have therefore played a central role in shaping early disclosure. In 2020, PCAF developed the first widely adopted attribution methodologies for financed emissions and has since become the primary methodological reference, now supported by more than 670 institutions globally (PCAF, 2025). Disclosure frameworks and initiatives such as CDP have further supported adoption and transparency.

Regulatory and standard-setting frameworks have since incorporated financed emissions more explicitly, while recognising practical constraints as reporting practices mature. For example:

- The ISSB's IFRS S2 Climate Standard requires disclosure of financed emissions when material and explicitly references Scope 3 Category 15.
- Recent analysis by a UK government advisory group highlights that a number of banks believe aligning emissions data with the most recent balance-sheet reporting period is often not feasible in practice (UK Sustainability Disclosure Technical Advisory Committee, 2025).
- Similarly, the EU Sustainable Finance Disclosure Regulation (SFDR) mandates reporting of financed emissions as a Principal Adverse Impact indicator, using standardised intensity metrics to enhance comparability across the EU market (European Commission, 2019).

While frameworks are converging on financed emissions as a core component of Scope 3 disclosure for financial institutions, important gaps and inconsistencies remain. The GHG Protocol distinguishes between required and optional financing activities based on data availability and attribution clarity (GHG Protocol, 2011), whereas PCAF provides methodologies for specific asset classes that do not always map directly to the GHG Protocol's classification (PCAF, 2020). Differences in scope definitions, asset-class treatment and materiality thresholds mean that institutions can be aligned with prevailing standards while still reporting materially different financed emissions figures, as summarised in Annex.

2.3 Current state of the financed emissions disclosure

The rapid expansion of standards and guidance related to financed emissions has led to a significant increase in reporting by financial institutions over the past years. Figure 4 captures this trend but also shows that quality of financed emissions data continues to vary across subsectors and geographies.

Figure 4.A: Financial sector Scope 3 disclosure rates FTSE All-World 2018-2024

Chart 1: Financial sector Scope 3 disclosure rates

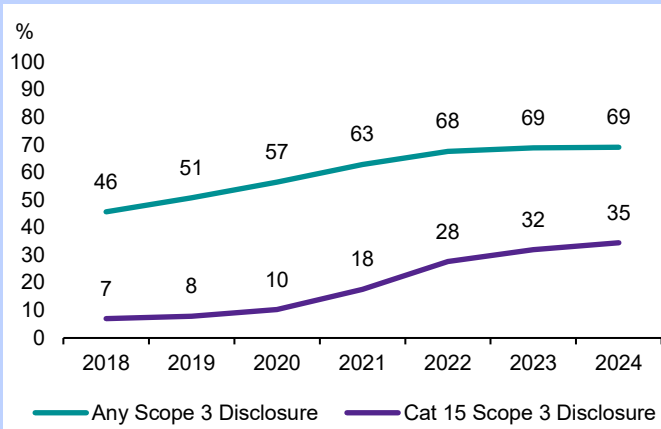


Chart 2: Developed vs. emerging markets financial sector

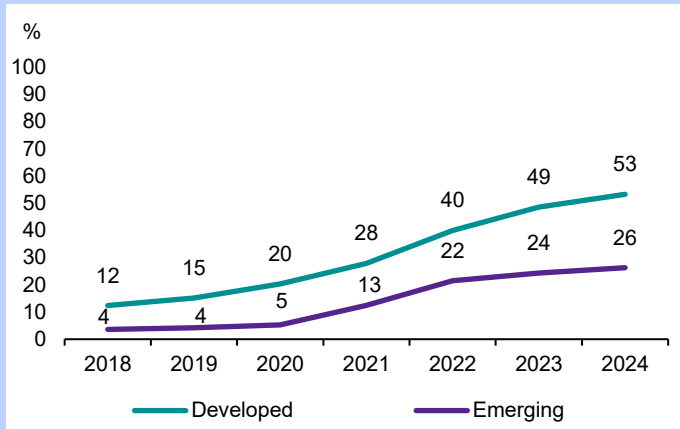


Figure 4.B: Financial sub-sector Scope 3 disclosure rates and materiality FTSE All-World 2018-2024

Chart 3: Material (Cat 15) reporting by Financials ICB 2 sector

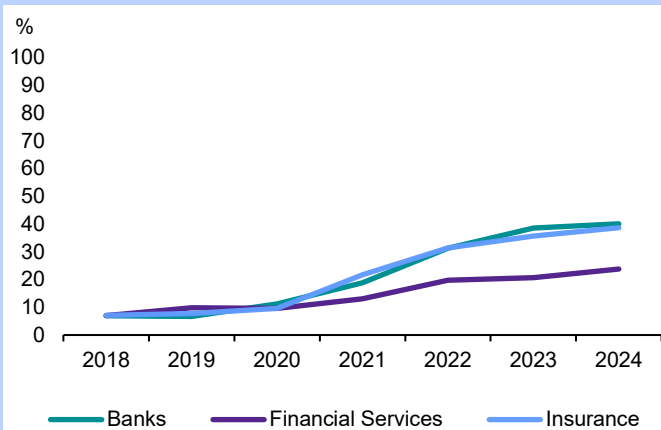
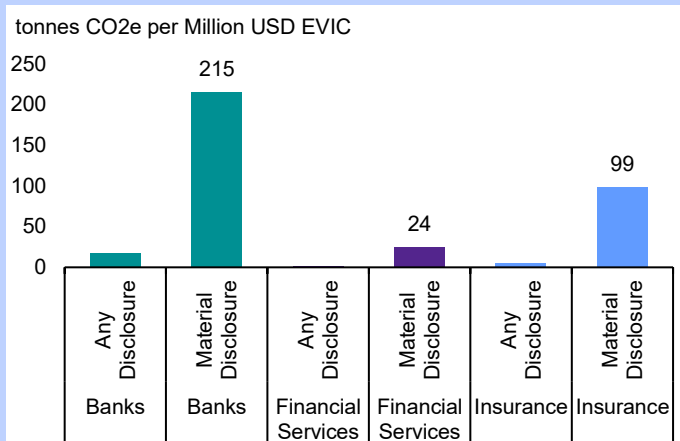


Chart 4: Carbon intensity by Financial ICB 2 sectors (mean of medians)



Source: Based on LSEG data (2025). FTSE All-World constituents and market capitalisation (at 31/12/FY) from FTSE Russell.

Our analysis shows that:

- **Reporting rates are improving but remain incomplete.** In 2024, only about a third of 550+ financial institutions of the FTSE All-World disclosed their financed emissions, although this is roughly three times the share that reported in 2020 (around 10%) (Chart 1, Figure 4).
- **Geographical gaps persist.** In 2024, 53% of financial institutions in developed markets disclosed their financed emissions, compared with 26% in emerging markets (Chart 2, Figure 4). This mirrors the broader pattern seen in Scope 3 reporting.
- **Subsector patterns vary.** Banks and insurers show similar disclosure trends, but financial services report less consistently with slower disclosure uptake over time. Yet they are just as exposed to climate risk and subject to the same regulatory expectations (Chart 2, Figure 4).
- **As expected, financial sector companies that report financed emissions (i.e. scope 3, category 15 emissions) have much higher carbon emissions and carbon intensities than peers that do not report their financed emissions.** Applying a “materiality filter”⁵ to financial subsectors increases significantly reported median emission intensity. On average, median values rise by 12 times for banks, more than 19 times for financial services and around 20 times for insurers (Chart 4, Figure 4).

⁵ See more: [Scope 3 conundrum: how materiality filters can sharpen the focus | LSEG](#)

3. How can missing financed emissions be estimated?

Despite growing disclosure, around 70% of financial institutions⁶ still do not report financed emissions, leaving investors with incomplete and uneven coverage across portfolios. As a result, when considering financial sector holdings, data user (e.g., investors) often fill these gaps with estimates. Given the current limitations in data granularity and the fact that individual investment positions are not always disclosed - it is however often challenging to achieve the same level of accuracy that a financial institution could obtain through calculating their own footprint.

3.1 Estimation techniques for undisclosed financed emissions data

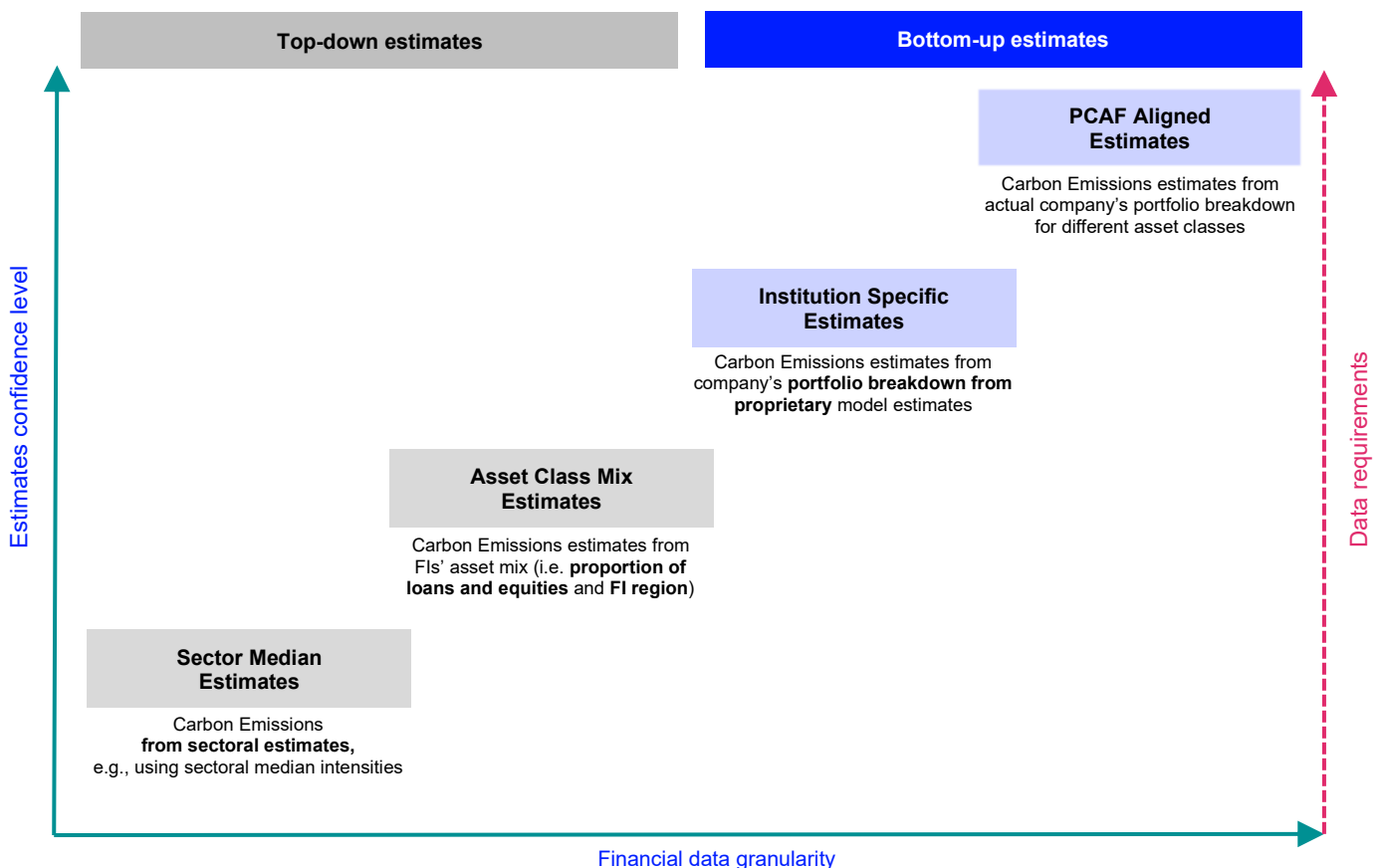
As discussed in Section 1, the most reliable approaches are the PCAF methods, which combine reported emissions with detailed financial exposure data. At the core of all approaches lies the same principle: financed emissions are the product of an institution's exposure to an asset and the carbon intensity associated with that asset. The challenge is selecting the most appropriate proxy for that carbon intensity when asset level emissions are missing.

Two broad estimation styles are typically used:

- **Bottom-up** - Uses portfolio breakdowns (by sector, geography, or asset type) matched with corresponding emissions data from public disclosures or modelled benchmarks. The granularity is limited to what balance sheet reporting allows, as investment positions are not always disclosed.
- **Top-down** - Uses high level balance sheet allocations to broad asset classes, paired with average or weighted carbon intensities for those classes.

Across this spectrum, financed emissions results can range from highly detailed asset level estimates to broad sector level approximations (Figure 5).

Figure 5 Types of estimation techniques for undisclosed financed emissions data



Source: LSEG, 2025.

⁶ Based on the 550+ financial institutions included in the FTSE All-World dataset underlying Chart 1 in Figure 3

- **PCAF-Aligned Estimates** (Most Granular) – Uses borrower- or project-specific emissions data (ideally verified and reported directly) and exact investment positions for loans, bonds, or equity. This enables precise attribution to the institution, full alignment with the PCAF methodology. However, it is very data intensive and almost only feasible for the financial institution itself to produce internally.
- **Institution Specific Estimates** (Bottom-Up) – Uses the institution’s portfolio breakdowns (by sector, geography, or asset class) matched with sector specific average emissions factors from public disclosures, benchmarks, or modelled datasets (e.g., IEA).
- **Asset-Class Mix** (Top-down) – Uses high level balance sheet allocations across broad asset classes (loans, bonds, equity) and applies average carbon intensities for each class, sourced from global equity indices (e.g., FTSE All-World Index), syndicated loan datasets (LSEG Deal Screener), or sovereign bond proxies (UNFCCC inventories scaled by GDP). This approach differentiates institutions only by the type and volume of asset classes held.
- **Sector Median** (Least Granular) – Applies a single average carbon intensity (e.g., tCO₂e/EVIC) across the entire portfolio, using peer group averages or global datasets (e.g., median intensity of all European banks) to the entire portfolio. This method is easy to apply and useful for initial screening.

Each approach outlines a different balance between how much data it needs and how much insight it can give into portfolio emissions. The right method depends on what information is available and requires data users to understand the method to assess whether the results are appropriate for their analysis.

3.2 LSEG’s estimation approach

Where financial institutions do not report financed emissions, limited public information is available to estimate portfolio-level emissions directly. However, investors and counterparties often still require a consistent way to assess climate risk exposure. To address this gap, LSEG applies a top-down asset-class mix methodology aligned with PCAF logic to generate comparable financed-emissions estimates across institutions.

The approach combines an institution’s exposure across asset classes with representative carbon intensity proxies for each asset class. A simplified expression is:

$$\text{Financed Emissions} = \Sigma (\text{Exposure in Asset Class} \times \text{Carbon Intensity of Asset Class})$$

A more granular methodology would require detailed asset-level portfolio breakdowns, including exposures to individual borrowers, projects, or securities. Such information is typically not publicly disclosed for a large global universe of institutions. To achieve scalable coverage, the estimation therefore relies on standardised balance sheet disclosures (e.g., net loans) combined with representative asset-class intensity benchmarks (e.g., carbon intensity / \$M of a loan).

This reflects a deliberate trade-off between precision and comparability. While asset-level approaches may provide more institution-specific estimates where data are available, the top-down framework enables consistent, globally comparable estimates across a broad population of financial institutions.

Table 2: Asset-class proxies used in the LSEG estimation

Asset class	Data used for carbon intensity proxy	Description	Rationale
Equity	FTSE All Cap Index	Global carbon intensity benchmark derived from a broad listed equity universe using reported Scope 1 and 2 emissions	Provides a diversified and stable proxy for market-wide equity emissions intensity, based on EVIC and consistent with other LSEG Scope 3 models
Loans	Central bank sectoral lending data (IMF)	Distribution of outstanding loans by industry and country, combined with Scope 1, 2 and upstream Scope 3 emissions derived through value chain linkages	Captures regional loan book structures for bank-to-bank comparisons and reflects system-wide lending patterns
	LSEG Deal Screener (syndicated loans)	Sectoral and emissions characteristics of outstanding syndicated loans by TRBC and region, aligned to FTSE All Cap-reported emissions	Adds borrower-level detail not visible in aggregates and uses proprietary data with no discontinuation risk
Future asset classes (e.g., AUM)	Global indices, sector averages, modelled datasets	Carbon intensities assigned using representative global market or sector-level proxies	Ensures consistent extension of the methodology as disclosures improve and supports application across all types of institutions

Source: LSEG, 2025.

LSEG combines central bank and syndicated loan data to produce a blended regional loan intensity. Additional asset classes can be integrated using the same principle as more detailed data become available.

Within LSEG's broader Scope 3 estimation framework, both upstream and downstream emissions are modelled separately. For financial institutions, however, this specific estimation model is used to calculate downstream Scope 3 emissions (as per GHG Protocol, Category 15 is part of downstream emissions). These estimates are available within LSEG's emissions datasets and analytical platforms, enabling users to assess relative climate exposure and transition risk where reported financed emissions data are not available. Further methodological documentation is provided in [LSEG's GHG Emissions Estimation Methodology](#) materials.

3.3 Improving estimated data quality over time

As disclosure expectations increase, both financial exposure data and carbon intensity estimation are expected to improve in quality and granularity. Regulatory standards (e.g., ISSB Climate Standard, SFDR) and voluntary frameworks (PCAF, NZBA) are already driving more consistent Scope 3 financed emissions reporting (See Section 2.1 and 2.3). Over time, accessing to more granular information should allow investors and other data users to move from high level proxies toward more asset-level estimates.

In the meantime, financed emissions will remain difficult to report and interpret, given the inconsistent data quality. Proxy data and estimates will therefore continue to play an important role in addressing disclosure gaps (CFA Institute, 2024). A practical near-term improvement would be greater disclosure of sectoral and regional portfolio breakdowns, which could provide a clearer, if imperfect, view of financial institutions' transition risk profiles while reporting practices continue to mature.

4. What drives changes in financed emissions over time?

From an investor perspective, the key question is not only how large financed emissions are, but what drives changes in the metric over time and what those changes imply for climate risk exposure. **Year-to-year movements can appear significant, yet they do not necessarily indicate real-world decarbonisation.** In practice, financed emissions shift due to a combination of portfolio allocation decisions, market valuation effects, and changes in companies' underlying emissions and their quality. Without separating these drivers, investors risk misinterpreting mechanical or market driven fluctuations as genuine climate improvement.

4.1 Three layers of change: portfolio, market, and emissions

Financed emissions vary over time due to three primary drivers: portfolio allocation, market valuation, and emissions dynamics.

- **Investment portfolio allocation.** Changes in *what* is financed, including index rebalancing, new additions, divestments (**net investment**), or shifts in capital between companies, sectors, or regions (**exposure**). These decisions alter the share of investees' emissions attributed to the portfolio, even when companies' own emissions remain unchanged. These shifts can also change the portion of total assets that is covered in the calculation, which can lead to significant movements in the final financed emissions figure (See Box 1).
- **Financial market valuation.** Changes in *how much* of a company's emissions are attributed, driven primarily by movements in EVIC, for example through share price fluctuations or broader macroeconomic conditions. Valuation effects can increase or decrease financed emissions without any operational change at the company level.
- **Emissions data.** Changes in companies' actual emissions, whether activity- or intensity-driven, as well as changes in the quality and availability of emissions data. Improvements or revisions in PCAF data quality scores (See Box 2) can move financed emissions independently of underlying performance.

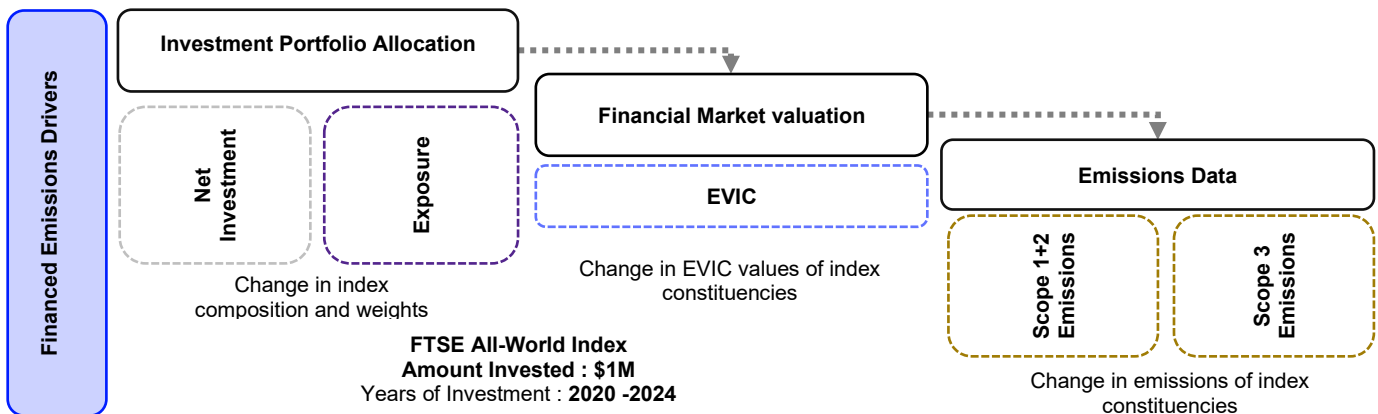
4.2 FTSE All-World 2020-2024: a three-layer decomposition

To illustrate how these drivers operate in practice, we apply the UNEP FI (2023) consensus attribution approach to the FTSE All-World Index over 2020-2024, assuming a notional US\$1 million investment. The analysis is presented separately for financed Scope 1 & 2 emissions and financed Scope 3 emissions.

Within this framework, annual changes in financed emissions are decomposed into four components: Net Investment, Exposure, EVIC, and Emissions. Figure 6 presents the contribution of each component to year-to-year movements in financed emissions.⁷

Data processing adjustments are applied to ensure full coverage and year-on-year comparability.⁸ Underlying emissions data are sourced from LSEG's curated Scope 1, 2 and 3 dataset, combining reported and modelled values, associated with their PCAF data-quality scores.

Figure 6: FTSE All-World 2020-2024: three-layer decomposition of change in financed emissions value



Source: LSEG, 2025

⁷ **Net Investment**, which captures index additions and removals; **Exposure**, which reflects shifts in portfolio weights; **EVIC**, which measures valuation effects after adjusting for inflation through a three-year average; and **Emissions**, which captures changes in reported operational emissions by investee companies.

⁸ **Technical note.** To reduce the imbalance between the effects of EVIC and carbon emissions, the impact of EVIC is distributed equally into two terms, assuming interaction between carbon emissions and EVIC. This balancing ensures that changes in emissions are not disproportionately influenced by large shifts in EVIC. For details, see UNEP FI (2023) *Annex 1 – Consensus Approach* and *Annex 3*.

Data and processing (integrated): We use LSEG's curated Scope 1, 2 and 3 dataset (a blend of reported and modelled values, for details see LSEG, 2022 and LSEG, 2024a) and track PCAF data-quality scores for every holding. To ensure full year-on-year coverage, we allow up to two years of forward extrapolation for both EVIC and emissions where gaps exist. EVIC values are rebased for inflation (2020 constant terms), and we remove extreme year-on-year EVIC outliers (>+200% or < -80%). This workflow yields complete data coverage for all years while preserving comparability.

4.3 Interpretation of the attribution results

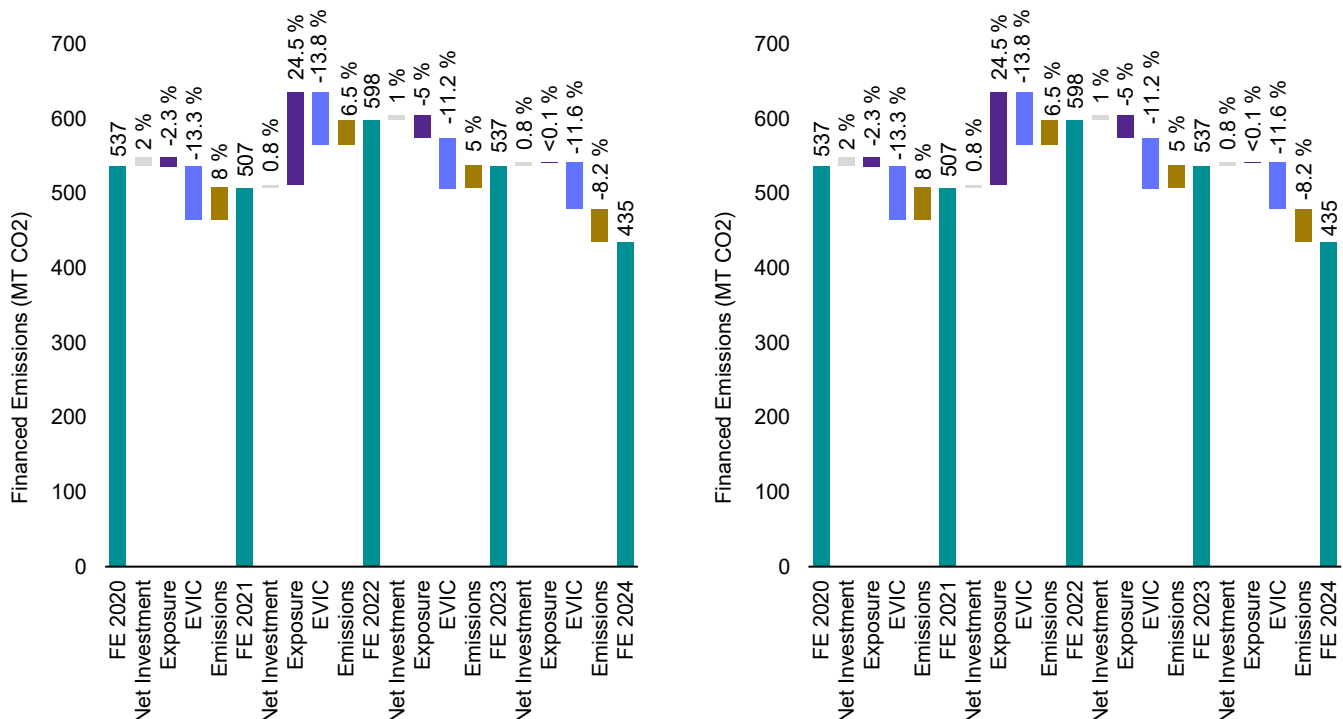
- Changes in exposure attribution mostly reflect shifts in market weights rather than changes in companies' actual emissions.**
 Between 2021 and 2022, the exposure effect increased financed emissions by 24.5% for Scope 3 and 14.5% for Scope 1 & 2. Because the analysis follows the FTSE All-World Index, this reflects the rising market values of high-emitting sectors such as Oil and Gas and Mining during the global energy price surge. As these sectors grew in index weight, financed emissions rose mechanically.
- Valuation effects can be mistaken for genuine decarbonisation progress.**
 Across years and scopes, the EVIC effect remains consistently negative, even after inflation adjustment and the use of a three-year averaging window. This indicates that valuation changes are a major driver of the attribution results. Strong market growth increases company valuations, which reduces financed emissions mechanically and can be misinterpreted as real decarbonisation progress.
- Scope 3 emissions effects reflect improving disclosure.**
 The Scope 3 emissions component is positive in almost all periods (~5% annually). Here, "positive" means that measured financed emissions increased. The majority of this likely reflects maturing Scope 3 reporting and coverage rather than widespread increases in real-world emissions (see section 4.4).
- Including Scope 3 increases volatility.**
 The effects of Scope 3 emissions can be up to eight times higher than those of Scope 1 and 2, indicating significantly greater variability in the underlying data. However, when data quality is carefully managed, the overall attribution pattern remains broadly comparable to that of Scope 1 and 2.

Financed emissions fluctuate significantly from year to year because they are influenced by three main drivers: investment portfolio allocation, financial market valuation effects, and changes in reported emissions. Each of these drivers can move in different directions from one year to the next. By examining these drivers carefully, we can better understand the underlying reasons for changes in financed emissions – such as higher global energy prices, increases in company valuations, or improvements in emissions reporting. These movements often explain changes in financed emissions rather than real-world decarbonisation.

Figure 7: Waterfall charts: decomposition of financed emissions changes (Scope 1 & 2; Scope 3), 2020-2024.

Chart 1: Scope 1 & 2 financed emissions attribution

Chart 2: Scope 3 financed emissions attribution



Source: Based on LSEG data (2025). FTSE All-World constituents and market capitalisation (at 31/12/FY) from FTSE Russell.

4.4 Decomposing the emissions effect: the role of data quality

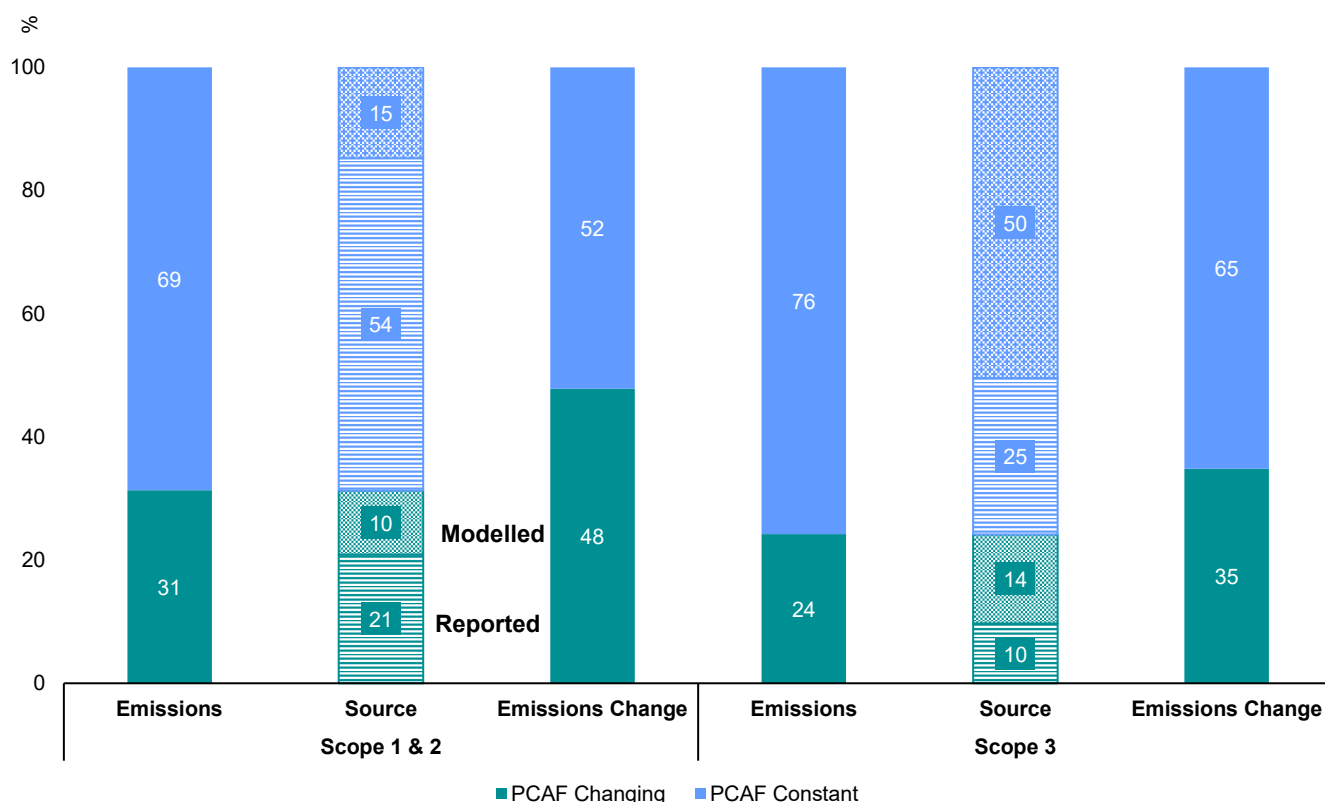
Even after controlling portfolio allocation and market valuation effects, the emissions attribution effect does not necessarily reflect real-world decarbonisation. Movements in this component may result from changes in data availability, estimation methods, or reporting practices rather than from shifts in companies' underlying emissions.

To provide greater transparency on the quality of the underlying emissions data, PCAF introduced a Data Quality Score that classifies emissions according to source and degree of estimation (see Box 2), helping to distinguish changes in performance from changes in disclosure.

Figure 8 compares the share of emissions and emissions change across companies with constant and changing PCAF Scores over 2020-2024. Across both Scope 1 & 2 and Scope 3, the majority of emissions come from companies with constant PCAF Scores. More precisely:

- In both scopes, companies with changing PCAF Scores contribute more to emissions change than their share of emissions, indicating that changes in data quality are associated with larger emissions movements.
- The interpretation differs across scopes due to underlying data sources. While the relative contribution of changing PCAF Scores appears slightly higher in Scope 1 & 2 (48% vs 31%) than Scope 3 (35% vs 24%), this reflects greater reliance on reported data. In contrast, Scope 3 emissions are more heavily modelled, which can smooth variations over time. As a result, apparent stability in Scope 3 may reflect consistent estimation rather than consistently reported data.

Figure 8: Emissions vs. emissions change by PCAF score stability (2020-2024 Average)



Emissions = the share of total portfolio emissions represented by those companies. Source = the share of emissions by PCAF score stability (reported = Score 1 or 2). Emissions change = the share of $\ln(Emissions_t / Emissions_{t-1})$.

Source: Based on LSEG data (2025). FTSE All-World constituents and market capitalisation (at 31/12/FY) from FTSE Russell.

Box 2: PCAF Data Quality Scores and the role of data maturity in financed-emissions estimates

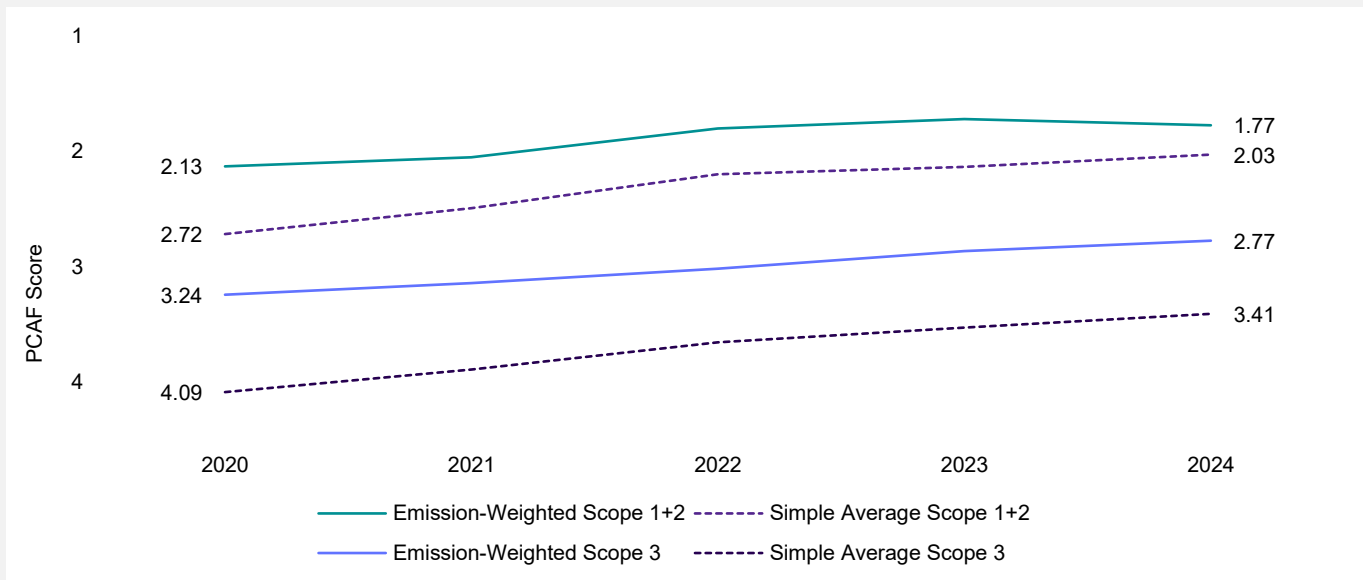
What the PCAF Data Quality Score Measures

PCAF Data Quality Score is a standardised indicator used to assess the robustness of emissions data underlying financed-emissions calculations. The score reflects the source and granularity of emissions data used for each exposure, rather than the absolute accuracy of the emissions themselves. Scores are assigned at the exposure level and can be aggregated to portfolio level as either a simple or emissions-weighted average. PCAF data quality scores classify financed-emissions estimates according to the robustness of the underlying data source. Scores range from **1 (highest quality) to 5 (lowest quality)** and broadly distinguish between **reported emissions (scores 1-2)**, **physical activity-based estimates (scores 2-3)**, and **economic activity-based estimates (scores 4-5)** (PCAF, 2025). The scores reflect the level of reliance on estimation and proxies, rather than the accuracy of emissions outcomes.

Observed evolution in the FTSE All-World portfolio (2020–2024)

Across the FTSE All-World Index, **portfolio-average PCAF Scores gradually decline** (indicating improving data robustness) over 2020–2023 for both Scope 1 & 2 and Scope 3. Scope 1 & 2 data are relatively mature, with a larger share of exposures supported by reported values. Scope 3 remains more reliant on modelled estimates, with portfolio-average scores clustering around 3.4-4.1. As a result, movements in Scope 3 financed emissions may reflect changes in reporting coverage and estimation methods in addition to underlying emissions dynamics.

Figure 9: Change in Scope 1-3 data quality reflected in the PCAF data-quality score trend (2018–2024)



Source: Based on LSEG data (2025), FTSE All-World constituents and market capitalisation (at 31/12/FY) from FTSE Russell.

5. How can investors use financed emissions data?

For financial institutions and data users, the challenge is not only to compute financed emissions figures, but to interpret them appropriately. When looked at in isolation, the metric still struggles to provide a clear picture of how investments are progressing on decarbonisation or how exposed they are to climate-related risk

5.1 Practical considerations for financial institutions and data users

Financed emissions provide a useful benchmark for portfolio-level carbon exposure. However, they are a backward-looking, point-in-time measure based on historical emissions attributed to current financial exposures. Their values are sensitive to market dynamics, portfolio composition, and methodological assumptions (see Sections 3 and 4). Depending on the use case, several limitations can affect how they are understood and applied. **These limitations could arise from three sources: (1) how the metric is constructed, (2) constraints in underlying emissions data, and (3) how the metric is interpreted in investment decisions.**

Table 3 summarise the key considerations for financial institutions and data users.

Table 3.A: Get the foundations right – construction and the wider

Consideration	Why it matters	What financial institutions and data users should do
Construction effects		
Portfolio transfer vs. real-economy decarbonisation	<ul style="list-style-type: none"> Divestment or asset transfers reduce reported emissions without reducing real-economy emissions Portfolio entrance and exits may be mistaken for decarbonisation progress 	<ul style="list-style-type: none"> Disclose divestment choices and highlight engagement and stewardship activities where divestment is not part of the decarbonisation strategy.
Portfolio and market attribution effects	<ul style="list-style-type: none"> Portfolio allocation, market conditions, or inflation, can materially affect financed emissions values EVIC-based attribution makes financed emissions sensitive to valuation changes 	<ul style="list-style-type: none"> Distinguish operational emissions reductions from reductions driven by portfolio reallocation and valuation effects. Apply multi-year averages (e.g., a three-year rolling EVIC average) to reduce market-driven volatility. Incorporate sector-specific physical metrics where possible to better understand real-world activity.
Cross-asset and cross-sector aggregation effects	<ul style="list-style-type: none"> Different asset types are not directly comparable Aggregation across asset classes and sectors can obscure structural differences and lead to misleading comparisons. 	<ul style="list-style-type: none"> Analyse financed emissions by asset-class and sector before comparing portfolios. Prioritise transparency in areas where financial institutions have the greatest leverage and exposure

Source: LSEG, 2025.

Table 3.B: Be transparent about data sources, constraints and limitations

Consideration	Why it matters	What financial institutions and data users should do
Data constraints		
Data quality and coverage	<ul style="list-style-type: none"> Disclosure quality and estimation methods remain uneven Limited ability to distinguish between robust disclosures from incomplete or weakly substantiated. Scope 3 coverage varies significantly across sectors and geographies 	<ul style="list-style-type: none"> Accompany financed emissions results with data quality diagnostics such as PCAF Scores and coverage ratios. Disaggregate financed emissions results by asset-class, sectoral and regional breakdown to identify transition risk profiles Disclose any exclusions or methodological limitations
Scope boundary inconsistency	<ul style="list-style-type: none"> Aggregating Scope 1, 2, and 3 emissions can obscure different sources of risk. Value-chain exposure differs materially from operational emissions 	<ul style="list-style-type: none"> Analyse Scope 1 and 2 separately from Scope 3. Focus on sector material Scope 3 categories, consistent with standards such as PCAF and IFRS S2.

Source: LSEG, 2025.

Table 3.C: Provide a metric dashboard to give a rounded picture

Consideration	Why it matters	What data users should do
Interpretability and use		
Backward-looking, point-in-time exposure	<ul style="list-style-type: none"> Based on historical emissions attributed to past or current holdings Does not capture shifting emissions profiles 	<ul style="list-style-type: none"> When isolated, treat financed emissions as an exposure indicator rather than a trajectory measure. Complement with forward-looking metrics (e.g., GHG targets, transition plans, capex alignment)
Isolated use of financed emissions metrics	<ul style="list-style-type: none"> May oversimplify portfolio alignment assessment A single metric cannot capture all alignment considerations (carbon exposure, transition ambition and green growth) 	<ul style="list-style-type: none"> Combine with complementary metrics that capture carbon exposure (e.g., WACI, exposure to carbon reserves), future decarbonisation efforts (transition plans, Implied Temperature Rise) and growth opportunities (Green Revenues, Green Capex).

Source: LSEG, 2025.

Financed emissions have become a central feature of climate reporting for financial institutions, yet the headline figure is often misunderstood. For the largest firms it can run into gigatons (a scale that bears little direct connection to physical reality) and taken in isolation, the aggregate number offers limited analytical value. What matters is not the total itself, but the picture it reveals: where carbon exposure originates in a portfolio, which assets and sectors drive it, and which financing channels prove more or less resilient to climate-related risks. This structural understanding is far more informative than the magnitude alone. When approached as a coherent analytical framework, rather than a single headline metric, financed emissions can offer genuinely useful insight into how capital is allocated and how financial institutions interact with the low-carbon transition.

5.2 Recommendations for financial institutions, data users and regulators

Recommendations for financial institutions

While the reporting burden remains significant, it is critical that financial institutions continue to strengthen their financed emissions disclosures. Without ongoing improvement, much of the progress achieved to date could be diminished. The most critical area of improvement is the disclosure of granular and complementary information, which ensures financed emissions figures to be interpreted appropriately. This includes:

- **Clear disclosure of the methodology used to calculate financed emissions**, including the allocation approach applied to attribute the institution's share of emissions (e.g., based on investment size or gross exposure), as well as the reporting date of the balances used in the calculation.
- **Breakdown by asset class, including both carbon and financial values**, and the proportion of total exposure captured. Where exclusions occur, institutions should clearly identify the asset class and explain the rationale.
- **Clearer sectoral and regional breakdowns of client portfolios**. Although this information is generally available internally, it is rarely disclosed. Sharing it would provide investors, with a more informed view of an institution's transition-risk profile while financed emissions reporting frameworks continue to evolve.
- **Separate reporting of Scope 1 & 2 and Scope 3 emissions**, ensuring that Scope 3 captures, at minimum, the most material categories for each sector, in line with international standards.
- **Transparent reporting of divestment decisions**, complemented by stewardship and engagement activities where institutions have influence. This helps ensure that reported progress reflects real-economy decarbonisation rather than simply changes in portfolio composition.

Recommendations for data users

Given ongoing variability in the quality and coverage of reported financed emissions data, they should be interpreted with caution. Users should understand the underlying drivers of change and assess the metric alongside complementary indicators. This includes:

- **Breaking down year-on-year changes in financed emissions** to distinguish real operational improvements from portfolio reallocations or valuation effects.
- **Using appropriate estimation methods when data is missing**, following PCAF-aligned approaches (where possible) to ensure emissions estimates remain transparent and consistent.
- **Assess financed emissions trends over multiple periods**, recognising that single year movements may reflect valuation or portfolio effects rather than decarbonisation effort.

- **Pairing financed emissions data with forward-looking and climate solutions metrics**, which together offer a more complete view of climate-related risks and portfolio alignment. This holistic approach helps investors better manage their exposure while supporting genuine decarbonisation in the real economy.

Recommendations for regulators

In an environment where improvements in climate-related disclosure may remain uneven, regulators play a critical role in maintaining clarity and momentum. It is also important to recognise that this is an area where there are evolving practices and hence a need not to be too prescriptive too soon. Regulatory focus should prioritise:

- **Enhancing consistency in financed emissions reporting frameworks**, reducing ambiguity in attribution approaches and promoting alignment with international standards such as PCAF and IFRS S2.
- **Encouraging clear disclosure of methodology used to calculate financed emissions with suitable more granular underlying breakdowns** including asset-class breakdowns, scope separation, and transparency on exclusions, to improve interpretability of financed emissions.
- **Additional narrative insights**; through encouraging narrative explanations for the changes in financed emissions over previous periods with reference to the portfolio market and any underlying emission trends, and any expectations for future levels of financed emissions.
- **Encouraging complementary disclosures alongside financed emissions**, including future decarbonisation efforts and green exposure metrics, to avoid leaning too heavily on a single backward-looking indicator when assessing alignment.

Annex: Disclosure requirements across standards

Table A1: Financed emissions disclosure requirements across key standards

Asset class / metric*	GHG Protocol Scope 3 Cat 15	ISSB IFRS S2 (Climate Disclosure)	EU SFDR	PCAF Global GHG Standard (3 rd edition)
Equity Investments	Required	Required if material	Required	Methodology available (Part A) <i>(listed equity & corporate bonds)</i>
Debt Investments (known use)	Required	Required if material	Required for Relevant Products	Methodology available (Part A) <i>(loans incl. mortgages and motor vehicle loans, commercial real estate, bonds with use of proceeds)</i>
Project Finance	Required	Required if material	Optional	Methodology available (Part A) <i>(project finance)</i>
Debt Investments (unknown use)	<i>Optional</i>	Not specified	Not required	Methodology available (Part A) <i>(general loans/bonds approach)</i>
Managed Assets	<i>Optional</i>	Required for Asset Managers	Required for Funds	Methodology available (Part A) <i>(asset management)</i>
Other Investments / Services	<i>Optional</i>	Not specified	Not required	Methodology available (Part A) <i>(incl. use of proceeds structures, securitizations and structured products)</i>
Facilitated Emissions	Not specified	Not specified	Not specified	Methodology available (Part B) <i>(facilitated emissions)</i>
Sovereign Debt	Not specified	Not specified	Not required	Methodology available (Part A) <i>(sovereign and sub-sovereign debt)</i>
Derivatives	Not specified	Excluded	Not required	Methodology under development

Source: LSEG, 2025. * Asset classes reflect PCAF classification, mapped to GHG Protocol Category 15 investment categories. Asset classes reflect PCAF classification, mapped to GHG Protocol Category 15 investment categories.

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