Analysis on material Scope 3 emissions disclosures

Government Pension Investment Fund of Japan

FTSE RUSSELL
An LSEG Business

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Executive Summary

Scope 3 emissions encompass all emissions linked to a company's products and services that occur within its value chain. Referred to as 'value chain emissions', they are often much larger than the Scope 1 and 2 emissions of companies and on average constitute 80% of companies' total greenhouse gas (GHG) emissions[1].

For emissions accounting purposes, the Greenhouse Gas Protocol groups Scope 3 emissions into 15 different categories, comprising both upstream and downstream emissions from company activities. The Scope 3 categories under upstream emissions include GHG emissions that occur upstream of the value chain related to acquired goods and services, whereas downstream emissions, occurs downstream of the value chain, mostly linked to sold goods and services.

Table 1: Scope 3 Upstream and Downstream categories

Upstream Scope 3 categories	Downstream Scope 3 categories
1 Purchased goods and services	9 Downstream transportation and distribution
2 Capital goods	10 Processing of sold products
3 Fuel and energy-related activities	11 Use of sold products
4 Upstream transportation and distribution	12 End-of-life treatment of sold products
5 Waste generated in operations	13 Downstream leased assets
6 Business travel	14 Franchises
7 Employee commuting	15 Investments
8 Upstream leased assets	

While Scope 3 emissions occur outside the direct operational control of corporates, they can entail significant climate risk. Companies with large downstream emissions footprints – emissions that are generated when customers use the companies' products, such as for oil producers or aircraft manufacturers – may come under pressure from regulators or face obsolescence risk from the introduction of low carbon alternatives. Where companies rely on carbon-intensive inputs, such as consumer electronics, steel or cement, they may face significant future cost inflation or pressure from customers to decarbonise their supply chains.

Considering portfolio companies' exposure to Scope 3 emissions is therefore critical for assessing climate risks in portfolios. To support this company reporting on Scope 3 emissions is starting to become mandatory in key jurisdictions however, gaps in the availability and quality of Scope 3 data still prevent the systematic integration of value chain emissions in investment decisions.

In this report, we:

- Identify the gap between disclosure rates and carbon intensity of scope 3 emissions by category and Industry (cf. Key Insight ①).
- Argue that in order to improve the quality of Scope 3 disclosures, it is important for companies to first disclose information on their material categories, considering it is technically more difficult to quantify than non-material categories, and it constitute the majority of total emissions (cf. Key Insight ②).
- Demonstrate how focusing on material categories in Scope 3 emissions reporting improves the quality and reduces the volatility of Scope 3 emissions data (cf. Key Insight ③).
- Recommend that investors use disclosed information from material categories and use estimates values of these when they are undisclosed for accurate portfolio analysis (cf. Key Insight ④).
- Recommend that companies constantly disclose information from material categories to reduce volatility in the scope 3 data (cf. Key Insight ⑤).
- Systematically apply the classification of material scope 3 categories on the FTSE All World 2022 Index constituents, representing a sample of over 4,000 large and medium-sized listed companies (cf. all 4 sections of the main report)

[1] See Fouret, F., Olesiewicz, M. & Haalebos, R. (2024). Scope for improvement: Solving the Scope 3 conundrum. FTSE Russell. Available at: https://www.lseg.com/en/ftse-russell/research/solving-scope-3-conundrum (Accessed: 02/07/2024)

Key Insights

① Importance of Scope 3 emissions varies depending on the category and sector

The importance of Scope 3 emissions varies depending on category, across various industries. However, companies do not always prioritize the disclosure of Scope 3 data by selecting the most material categories. For instance, it is relatively easy for companies to estimate the carbon emissions associated with Employee Commuting or Business Travel (categories 6 and 7) – even though these may represent a minor share of their total Scope 3 emissions – given that these calculations are based on primary data that companies have control of and access to (e.g., number of employees, commuting routes and frequency, business travel destinations etc.). On the other hand, categories that tend to have the highest carbon footprint such as Purchased Goods and Services or Use of Sold Products (categories 1 and 11) require for their calculation primary data that is typically difficult for companies to obtain, such as supplier or consumer data.

② Disclosure of two important categories for each industry can cover about 80% of the total Scope 3 emissions

In the absence of specific regulatory guidance or standards on which emissions categories should be considered as most material in which sector, investors and companies need a clear perspective on what corporate Scope 3 emission to regard as material. In previous FTSE Russell research[2], a three-step methodology to identify the most material Scope 3 emissions categories in each sector was developed that:

1. Firstly, calculates the median Scope 3 intensity for each Scope 3 category in each sector based on all currently available disclosed data.
2. Next, calculates the percentage contribution of each category to the sectors' overall Scope 3 carbon intensities.
3. Finally, ranks the categories from the highest to the lowest contribution to each sector's Scope 3 carbon intensity.

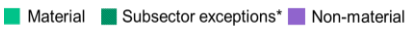
The results show that **the top two categories with the highest contribution cover on average 80% of total Scope 3 emissions of a company**.

- The table in Figure 1 provides the disclosure rate and Scope 3 carbon intensity (tCO2e/mUSD) for each category in each Industry. The top two categories by carbon intensity in each industry are displayed in green, while others (the "non-material") are displayed in purple.
- Figure 2 shows the share of emissions of the two most material categories (green bars) in each industry's Scope 3 intensity. The purple bars are Scope 3 emissions from the other, less material categories. For example, for the Technology industry, "Category 1: Purchased goods and services "and "Category 11: Use of sold product" together account for 88% of the industry's total Scope 3 emissions, while emissions from non-material categories (other than those from categories 1 and 11) account for the remaining 12%.

Figure 1: Disclosure rates and median intensities across material and non-material Scope 3 categories per Industry, 2018-2022

Industry (ICB. 1)*	ICB Code	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5	Cat 6	Cat 7	Cat 8	Cat 9	Cat 10	Cat 11	Cat 12	Cat 13	Cat 14	Cat 15
Basic Materials	55	268	18	39	22	3	0	1	0	18	158	353	117	0	na	51
		33%	22%	30%	30%	26%	30%	27%	6%	21%	13%	11%	14%	4%	< 1%	11%
Consumer Discretionary	40	154	10	3	9	1	1	2	0	6	2	239	5	1	4	2
		29%	21%	26%	26%	29%	32%	28%	5%	15%	4%	18%	18%	7%	6%	7%
Consumer Staples	45	305	12	7	18	1	0	1	1	16	16	38	10	2	4	9
		34%	22%	30%	33%	32%	35%	26%	8%	26%	7%	17%	24%	7%	5%	8%
Energy	60	128	6	17	23	1	0	0	0	13	187	3176	30	0	3	60
		18%	8%	14%	18%	14%	19%	14%	4%	14%	8%	24%	6%	1%	3%	6%
Health Care	20	71	8	3	5	1	1	2	1	3	1	9	1	0	na	0
		23%	19%	22%	22%	25%	30%	23%	6%	12%	2%	9%	15%	4%	< 1%	4%
Industrials	50	122	11	4	11	1	1	2	0	9	8	393	3	1	1	4
		30%	22%	31%	25%	29%	36%	29%	6%	15%	4%	17%	15%	7%	1%	6%
Real Estate	35	22	42	7	1	4	0	1	0	16	na	74	3	83	na	12
		17%	12%	18%	6%	18%	22%	16%	5%	3%	< 1%	4%	3%	17%	< 1%	3%
Technology	10	46	8	2	2	0	1	1	0	1	1	99	0	0	na	2
		30%	22%	26%	24%	27%	35%	30%	10%	16%	5%	15%	13%	4%	< 1%	6%
Telecomms	15	41	16	5	1	0	0	1	1	2	na	14	0	6	1	3
		36%	28%	32%	29%	31%	40%	33%	12%	16%	< 1%	29%	20%	13%	7%	6%
Utilities	65	36	39	324	2	1	0	0	0	3	7	733	1	1	na	33
		29%	19%	38%	20%	25%	38%	29%	6%	9%	3%	25%	2%	3%	< 1%	7%

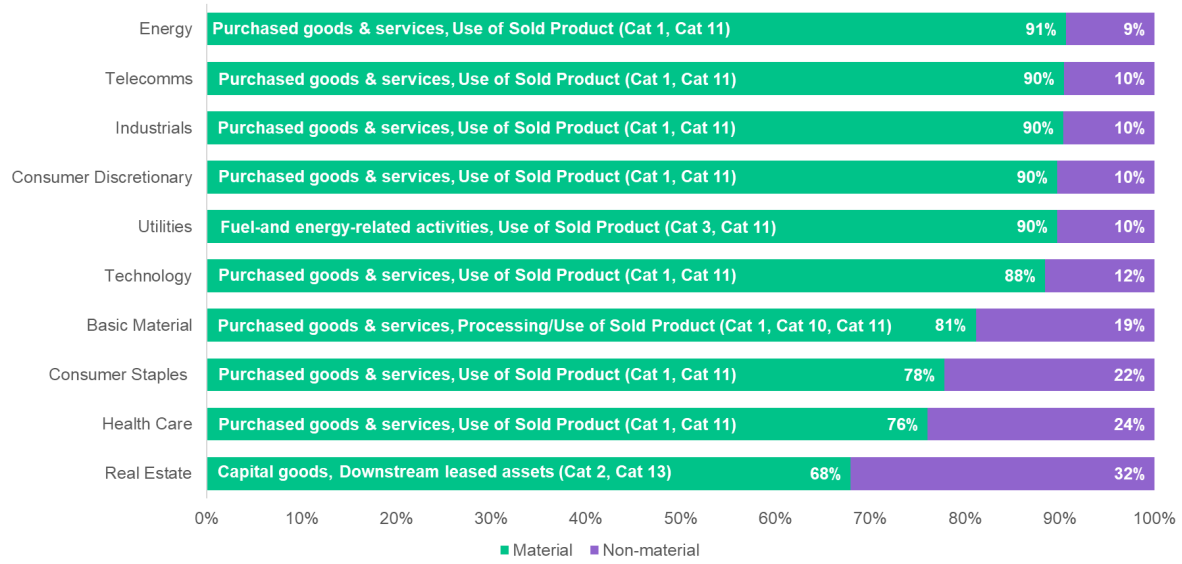
* See Box 1



Source: FTSE Russell, June 2024

[2] See Fouret, F., Olesiewicz, M. & Haalebos, R. (2024). Scope for improvement: Solving the Scope 3 conundrum. FTSE Russell. Available at: https://www.lseg.com/en/ftse-russell/research/solving-scope-3-conundrum (Accessed: 02/07/2024)

Figure 2: Classification of material Scope 3 categories by Industry (by percentage of contribution to total Scope 3 emissions)

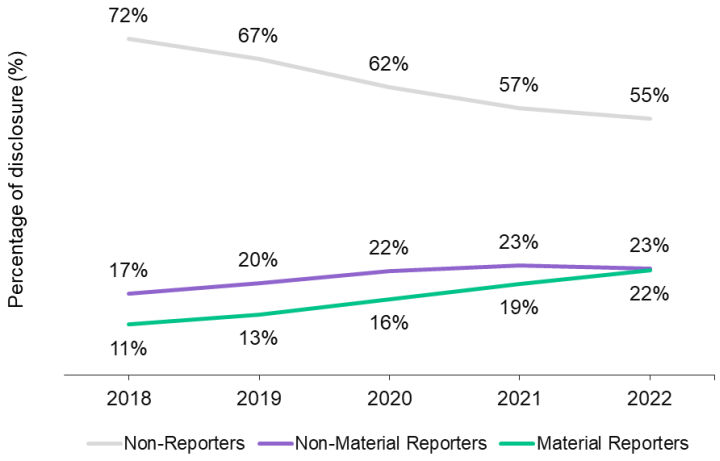


Source: FTSE Russell, June 2024

③ The importance of increased disclosures of material Scope 3 categories

To illustrate this, figure 3 shows the trend of large and medium sized listed companies reporting Scope 3 emissions from 2018 to 2022. This highlights the reporting trends for both companies with Scope 3 disclosures that cover the two most material categories for their sector in their reporting (denoted by the green line) and those reporting Scope 3 data but not covering these categories (denoted by the purple line).

Figure 3: Scope 3 reporting trends (in percentage of disclosure), 2018 – 2022



Source: FTSE Russell, June 2024

We observe rapid improvements in Scope 3 reporting.

- **Increase in volume of disclosures**: between 2018 and 2022, there was a 60% increase in companies reporting any Scope 3 data, whether material or not material (from 28% in 2018 to 45% in 2022).
- **Increase in quality of disclosures**: between 2018 and 2022, there was a 100% increase in companies reporting material Scope 3 data (from 11% in 2018 to 22% in 2022).

Nonetheless, investors are still faced with significant data gaps and quality challenges…

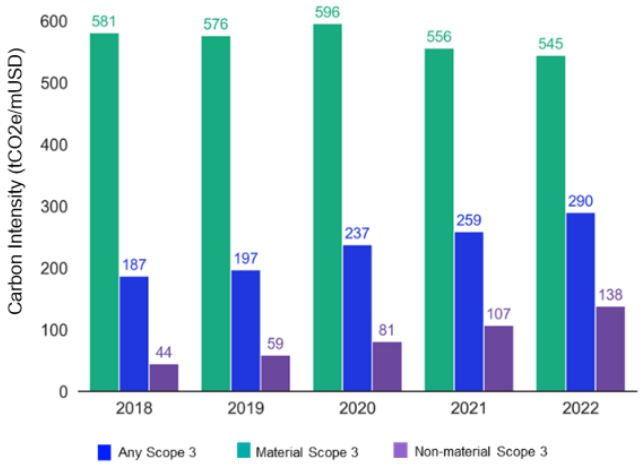
- Overall disclosure rates remain low compared to Scope 1 and 2 emissions. Only 45% of constituents disclose their Scope 3 emissions compared with 70% for Scope 1 and 2.
- Among the 45% of companies that do disclose Scope 3 emissions, only about half (22%) of the reporting companies cover the two most material categories in their sector as part of their Scope 3 reporting.

- Disclosed Scope 3 data is often very volatile. Changes to reporting categories are a key source of this volatility.

④ Investors can fill current data disclosure gaps through estimates

Given the gaps in the data, investors are often forced to rely on estimates for companies that don't disclose their Scope 3 emissions or omit the most material categories from their reporting. Figure 4 demonstrates this point; companies that only disclose non-material Scope 3 emissions for their Industry (purple bar) show a median Scope 3 emissions intensity that is just a quarter of the median intensity for companies that disclose material Scope 3 categories (green bar).

Figure 4: All World median Scope 3 carbon intensity 2018-2022



Source: FTSE Russell, June 2024

When conducting Scope 3 portfolio analysis, investors therefore should systematically screen out disclosures that omit the most material categories – that is use only material Scope 3 reporting (green bar) instead of using all Scope 3 data (blue bar). This has several benefits:

- provides a more realistic estimate of the Scope 3 carbon intensity of a portfolio.
- enables more accurate trend analysis.
- It also significantly reduces noise and volatility in the dataset.

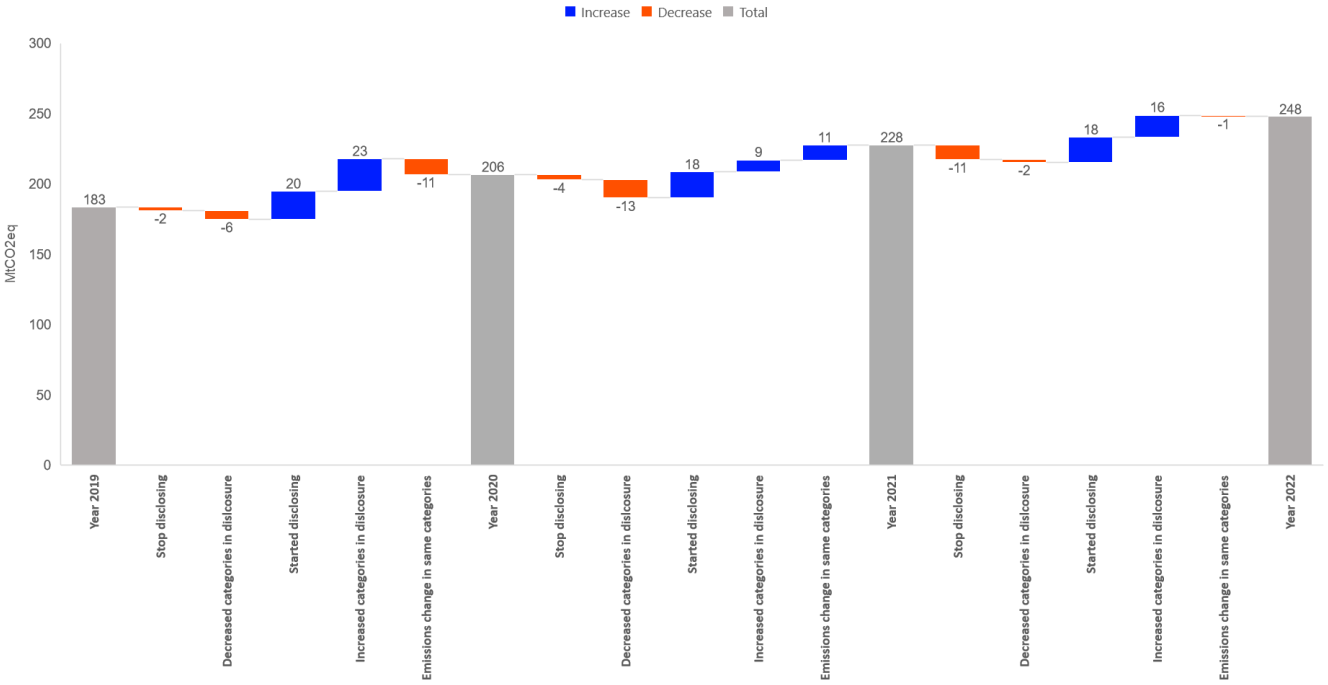
This means that, in the absence of material Scope 3 disclosures, investors will use estimates which are likely to be higher than the actual values for most companies. This can penalise companies as estimation models tend to be conservative and can overestimate actual emissions. Therefore, focusing their efforts on material Scope 3 disclosures is a reliable way for companies to avoid the risk of over-estimation by investors of their Scope 3 carbon footprint.

⑤ Companies can reduce volatility in the scope 3 data by reporting constantly their material categories.

Volatility is one of the main challenges for integrating Scope 3 data into investment decisions. On average, companies that report constantly scope 3 data have a year-on-year volatility (positive or negative) of over 20%.

A significant source of volatility is companies that either start or stop disclosing Scope 3 data, or adjust the categories that they are reporting on (Figure 5). Focusing on material categories can therefore significantly reduce volatility and limit noise in Scope 3 data.

Figure 5: Contribution to the Scope 3 absolute emissions changes from 2019 to 2022 for the FTSE All World index



Source: FTSE Russell, June 2024

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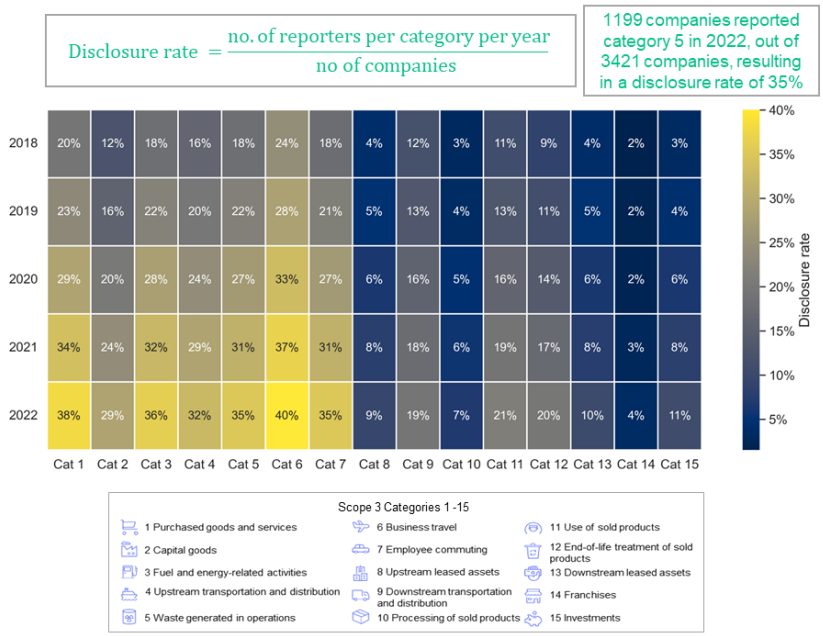
1. Scope 3 disclosures trends by category, region and sector

1.1. Scope 3 reporting trends, breakdown by category, per year

KEY INSIGHT: Disclosure rates across categories vary significantly, with companies reporting category 6 (business travel) emissions the most and reporting category 14 (franchises) the least. In general, companies tend to report more on their upstream categories than the downstream categories.

Figure 6: Disclosure rate across Scope 3 categories, 2018-2022

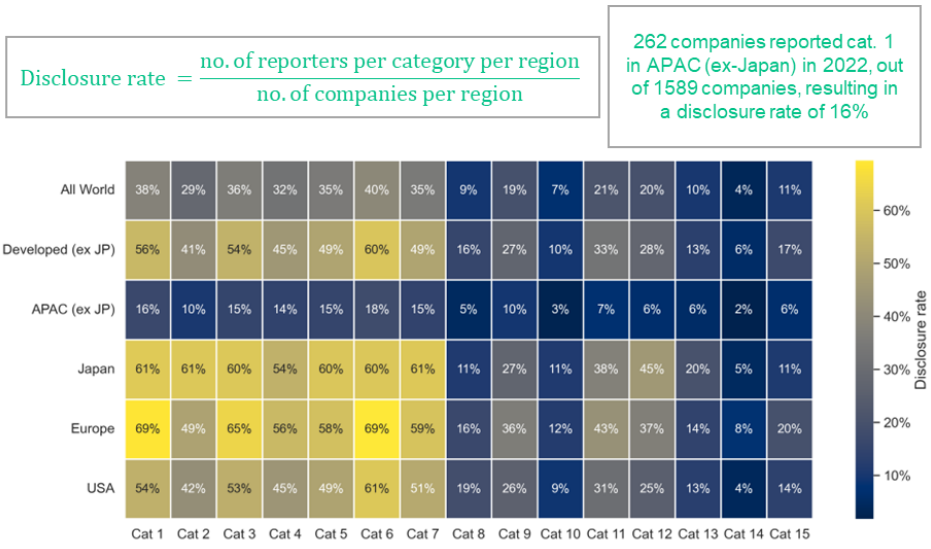


Source: FTSE Russell, June 2024

1.2. Scope 3 reporting trends, breakdown by category, per region

KEY INSIGHT: Companies in all regions have a marked focus on upstream emissions, with Japanese companies notably leading in upstream disclosures compared to their peers globally and in other regions. Figure 8 shows that Japanese companies, on average, consistently cover more Scope 3 categories in their disclosures than their peers in other regions.

Figure 7: Disclosure rate across categories per region, 2022



Source: FTSE Russell, June 2024

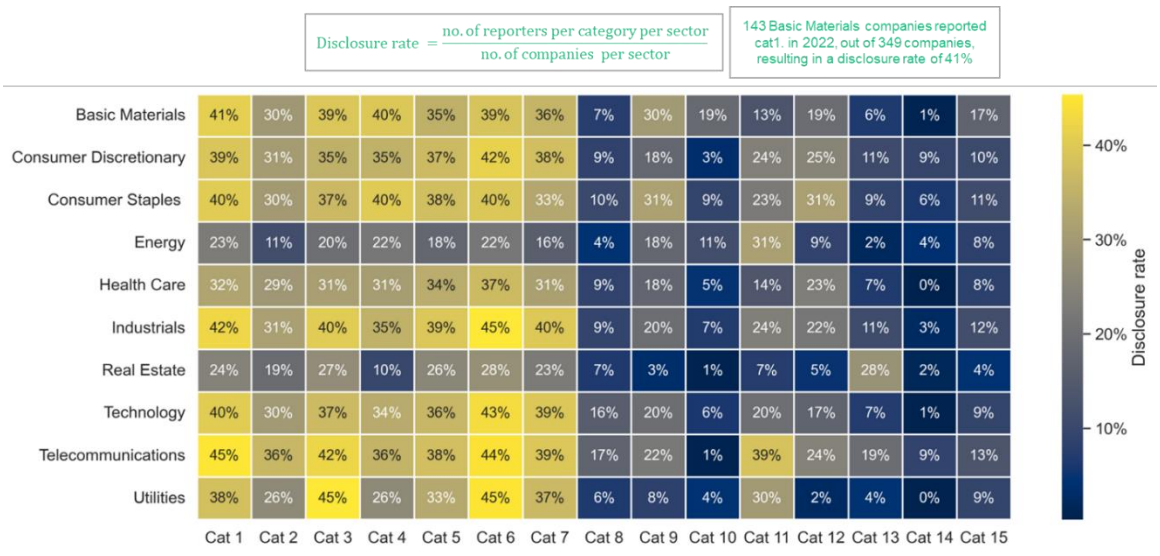
Figure 8: Average number of categories disclosed per region, 2018- 2022

Source: FTSE Russell, June 2024

1.3. Scope 3 reporting trends, breakdown by category, per industry

KEY INSIGHT: Companies in all sectors show a marked focus on upstream emissions, with high disclosure rates for categories 1 to 7. The exceptions to this with strong disclosures in the downstream emissions include the Energy sector which shows strong disclosures in category 11 (use of sold products), and Real Estate, which shows strong disclosures in category 13 (downstream leased assets).

Figure 9: Disclosure rate across categories per Industry, 2022



Source: FTSE Russell, June 2024

2. Materiality of Scope 3 disclosures

Available data shows (a) that there are significant differences in the overall materiality of Scope 3 in different sectors and (b) that different Scope 3 categories contribute to very different extents in different categories.

2.1. Scope 3 breakdown by category, Median Intensity and Disclosure rate

KEY INSIGHT: A straightforward way to compare Scope 3 emissions across sectors and categories, is to calculate median Scope 3 emissions intensity per dollar of revenue, based on all available disclosures. In Figure 10 below, we show these median intensities for each Industry by Scope 3 category in combination with the disclosure rates. The two most intensive categories in each sector are highlighted in green. This shows that:

- Scope 3 intensities vary greatly between sectors, with Purchased Goods and Services and Use of Sold Products (categories 1 and 11) being overall the most carbon intensive categories.
- In each sector, most of the emissions come from only a few categories. Our analysis shows that the top two categories with the highest contribution cover on average 81% of total Scope 3 emissions of a company.
- Some Scope 3 categories tend to be more important across sectors. Categories 1 and 11 are the most intensive categories for most Industries.

While the most material categories can in most cases be assigned at the ICB industry level, some sectors and sub-sectors have diverging Scope 3 profiles from their industry peers. These are flagged in the notes to the table.

Figure 10: Disclosure rates and median intensities across material and non-material Scope 3 categories per Industry, 2018-2022

$$\text{Disclosure rate} = \frac{\text{no. of reporters per category, per industry per year}}{\text{no of companies per category, per industry per year}}$$

Industry (ICB. 1)*	ICB Code	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5	Cat 6	Cat 7	Cat 8	Cat 9	Cat 10	Cat 11	Cat 12	Cat 13	Cat 14	Cat 15
Basic Materials	55	268	18	39	22	3	0	1	0	18	158	353	117	0	na	51
		33%	22%	30%	30%	26%	30%	27%	6%	21%	13%	11%	14%	4%	< 1%	11%
Consumer Discretionary	40	154	10	3	9	1	1	2	0	6	2	239	5	1	4	2
		29%	21%	26%	26%	29%	32%	28%	5%	15%	4%	18%	18%	7%	6%	7%
Consumer Staples	45	305	12	7	18	1	0	1	1	16	16	38	10	2	4	9
		34%	22%	30%	33%	32%	35%	26%	8%	26%	7%	17%	24%	7%	5%	8%
Energy	60	128	6	17	23	1	0	0	0	13	187	3176	30	0	3	60
		18%	8%	14%	18%	14%	19%	14%	4%	14%	8%	24%	6%	1%	3%	6%
Health Care	20	71	8	3	5	1	1	2	1	3	1	9	1	0	na	0
		23%	19%	22%	22%	25%	30%	23%	6%	12%	2%	9%	15%	4%	< 1%	4%
Industrials	50	122	11	4	11	1	1	2	0	9	8	393	3	1	1	4
		30%	22%	31%	25%	29%	36%	29%	6%	15%	4%	17%	15%	7%	1%	6%
Real Estate	35	22	42	7	1	4	0	1	0	16	na	74	3	83	na	12
		17%	12%	18%	6%	18%	22%	16%	5%	3%	< 1%	4%	3%	17%	< 1%	3%
Technology	10	46	8	2	2	0	1	1	0	1	1	99	0	0	na	2
		30%	22%	26%	24%	27%	35%	30%	10%	16%	5%	15%	13%	4%	< 1%	6%
Telecomms	15	41	16	5	1	0	0	1	1	2	na	14	0	6	1	3
		36%	28%	32%	29%	31%	40%	33%	12%	16%	< 1%	29%	20%	13%	7%	6%
Utilities	65	36	39	324	2	1	0	0	0	3	7	733	1	1	na	33
		29%	19%	38%	20%	25%	38%	29%	6%	9%	3%	25%	2%	3%	< 1%	7%

* See Box 1

Material Subsector exceptions* Non-material

Source: FTSE Russell, June 2024

Box 1. Detailed materiality methodology

Figure 10 provides a high-level overview at the industry (ICB level 1) level. In some industries subsector profiles can be materially different – requiring a focus on different Scope 3 categories to achieve good coverage of total Scope 3 emissions as follows (see Figure 56 for full detail):

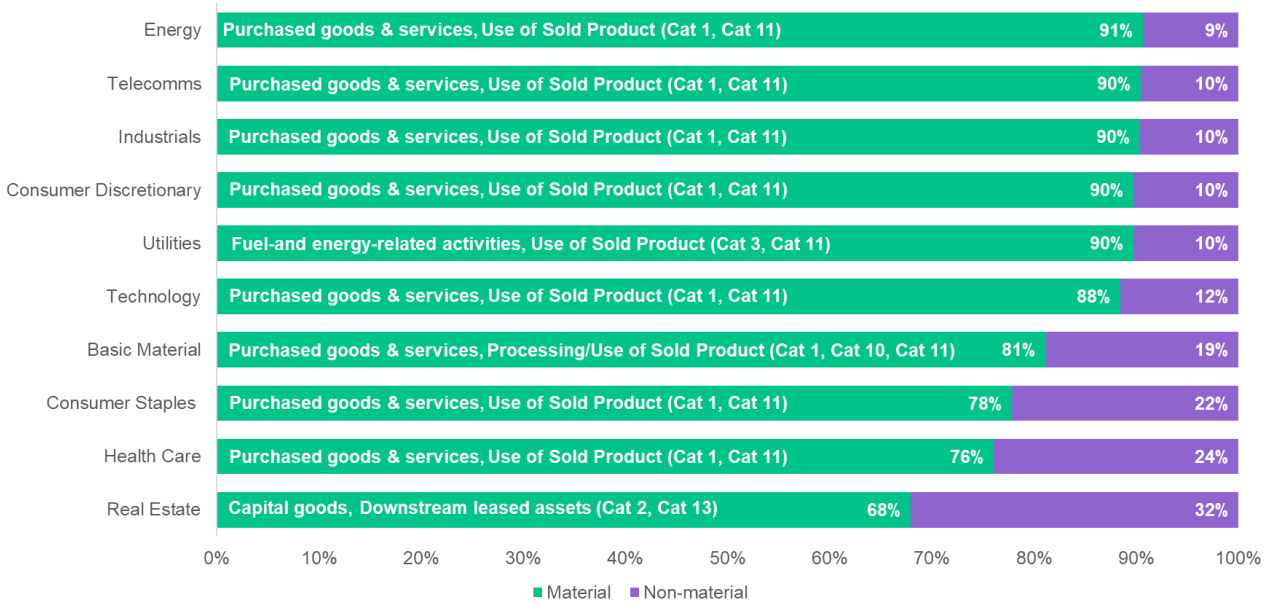
- For **Real Estate, Telecoms,** we determine the two most material categories at the ICB 3 sector level given diverging subsector profiles, resulting in three categories being highlighted at ICB 1 level. Figure 56 (p. 33) provides results at ICB 3 level.
- For **Basic Materials** we also identify the most material categories at the ICB 2 level given diverging subsector profiles. Additionally, for mining companies (Basic Resources ICB 5510), Categories 1 and 10 are the most material sources of Scope 3 emissions, except in cases where miners are involved in coal production, in which case Category 11 becomes the dominant source of Scope 3 emissions. However, the ICB classification system does not distinguish systematically between miners with exposure to coal and those with no coal exposure. Companies with exposure to coal mining should therefore disclose an additional, third category (Category 11) to avoid material emissions from being omitted.
- For the **Energy** industry, Category 11 is by far the most material accounting for well over 80% of emissions. However, the median Scope 3 intensities for Categories 1 and 10 are very similar, making the determination of the second most material category sensitive to the specification of the time period and company sample. To maintain consistency with our previous analysis[2], we flag Category 1 here as the second most material category, though the median of Category 10 emissions in this specific data sample is slightly higher.

2.2. Using intensities to define material Scope 3 emissions categories for each sector

This approach also provides a straightforward rule of thumb to determine which categories should be defined as material in each sector.

KEY INSIGHT: Recent FTSE Russell research[3] show that the two most material categories account on average for 80% of total scope 3 emissions of a company (Annex, Figure 35 p.24) and identified the two most material categories for each industry. Figure 11 shows the share of emissions of the two most material categories (green bars) in each industry's Scope 3 intensity. The purple bars are Scope 3 emissions from the other, less material categories. For example, for the Technology industry, "Category 1: Purchased goods and services "and "Category 11: Use of sold product" together account for 88% of the industry's total Scope 3 emissions, while emissions from non-material categories (other than those from categories 1 and 11) account for the remaining 12%.

Figure 11: Share of the 2 most material GHG categories in Industry emissions,



Source: FTSE Russell, June 2024

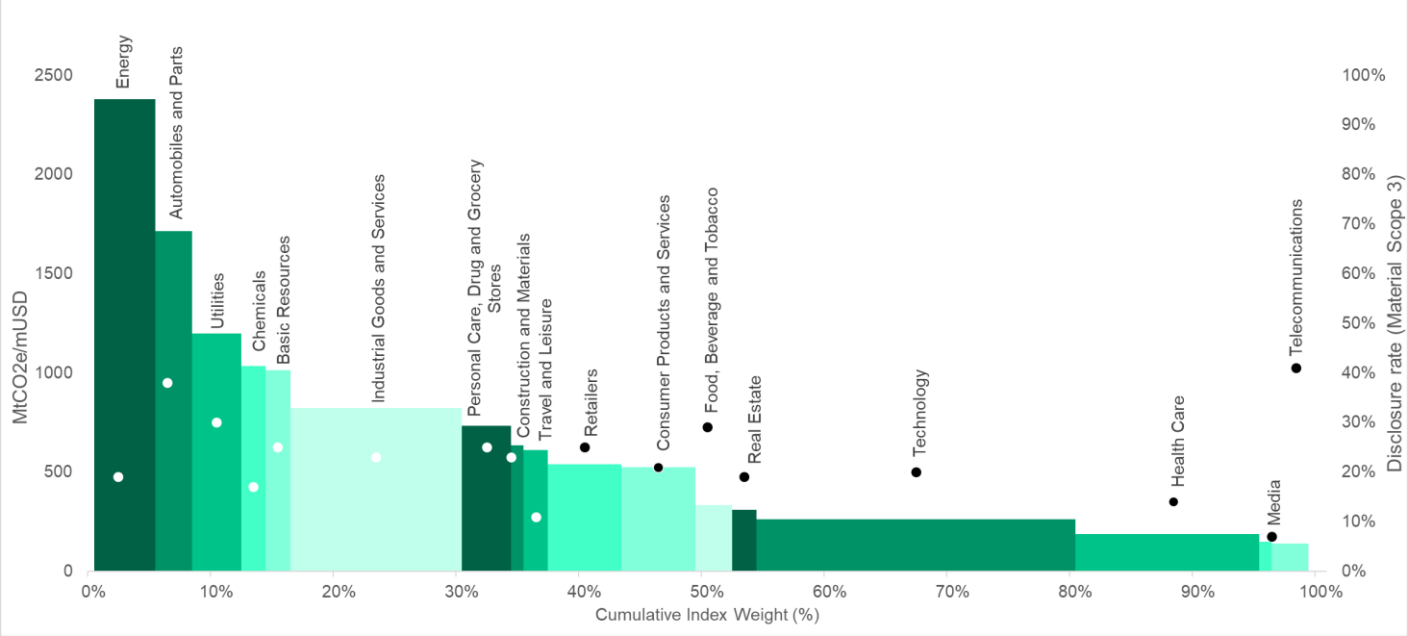
Calculation of Industry shares is based on median intensities presented in Figure 1, taking Sector or Subsector exceptions into account.

2.3. Sector comparison of Scope 3 intensities, disclosure rates, and index weights

KEY INSIGHT: Figure 12 compare the Supersector carbon intensities based on material scope 3 disclosures (left y-axis) and their sector disclosure rates (right y-axis) with index weights (x-axis) for 2022. It shows that the contribution of Scope 3 intensive sectors that have relatively limited index weight (Energy, Utilities, Automobiles and Parts) to the final index's carbon intensity is significant compared to larger, but less Scope 3 intensive sectors (Technology and Health Care).

[3] Scope for improvement: Solving the Scope 3 conundrum | LSEG

Figure 12: Scope 3 carbon intensity (2022 median) with corresponding disclosure rates and index weights by Supersector

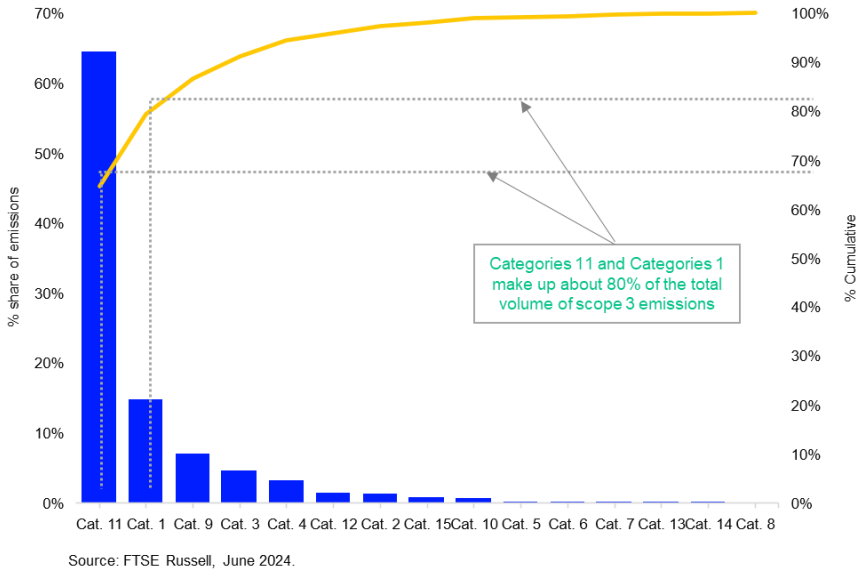


Source: FTSE Russell, June 2024

2.4. Category comparison of Scope 3 emissions volumes

KEY INSIGHT: Figure 13 shows the contribution of each category to the Scope 3 emissions of the FTSE All World Index 2022. Looking at emissions volume, the two most carbon intensive categories (categories 11 and 1) make up about 80% of the total, as expected.

Figure 13: Scope 3 Category breakdown by emission volume, 2022.

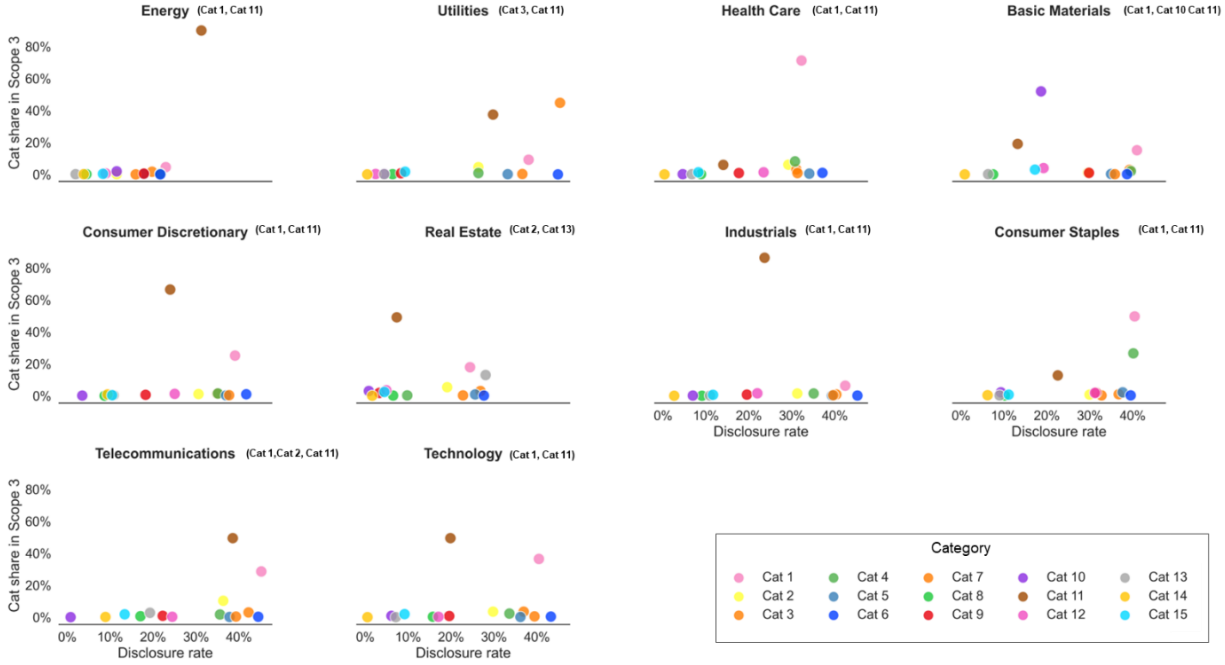


Source: FTSE Russell, June 2024

2.5. Scope 3 breakdown by category, Share in Total Scope 3 vs Disclosure rate

KEY INSIGHT: Looking at sectoral disclosure rates against the category share in Total Scope 3, a clear picture emerges showing categories, such as 11 and 1, mostly having the highest share of Scope 3 volume, in alignment with previous FTSE Russell research. Despite this, disclosure rates for these categories are still below par.

Figure 14: Disclosure rate across categories per Industry, 2022



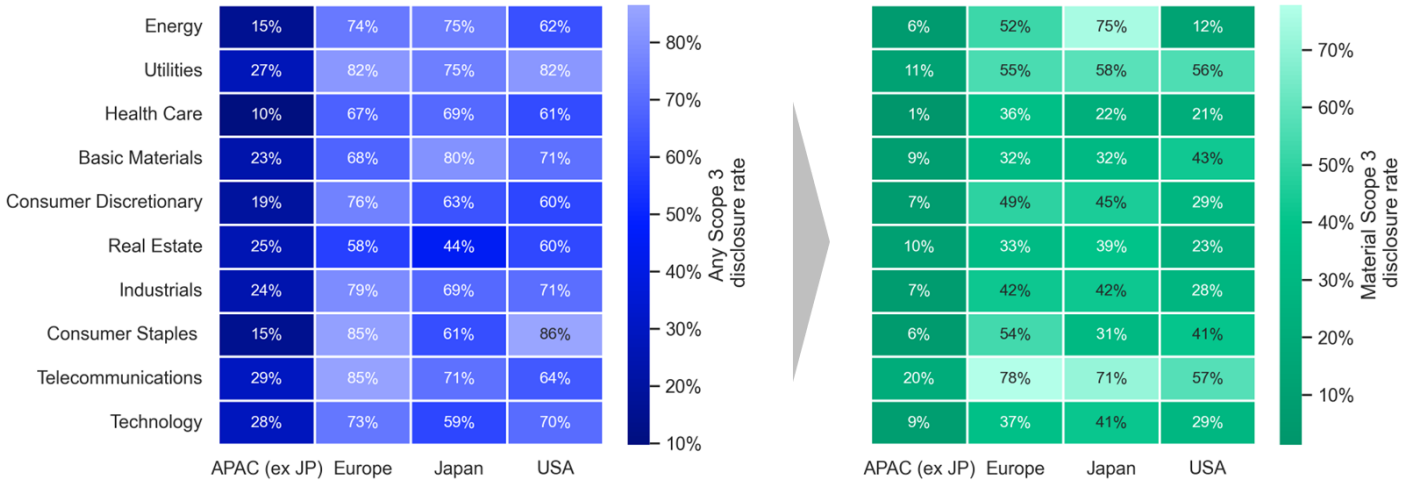
Source: FTSE Russell, June 2024

3. Using materiality filters to analyse disclosure trends

3.1. Material Scope 3 reporting, per sector and region

KEY INSIGHT: Focusing on material Scope 3 provides a more accurate picture of Scope 3 emissions, by highlighting a more realistic emissions profile across sectors and regions within a portfolio. For example, Figure 15 shows 15% Scope 3 disclosure rate in APAC (ex-JP), however, a focus on material Scope 3 shows only 6% of APAC companies are disclosing material Scope 3.

Figure 15: Disclosure rate, per sector and region in 2022, Any Scope 3 vs Material Scope 3



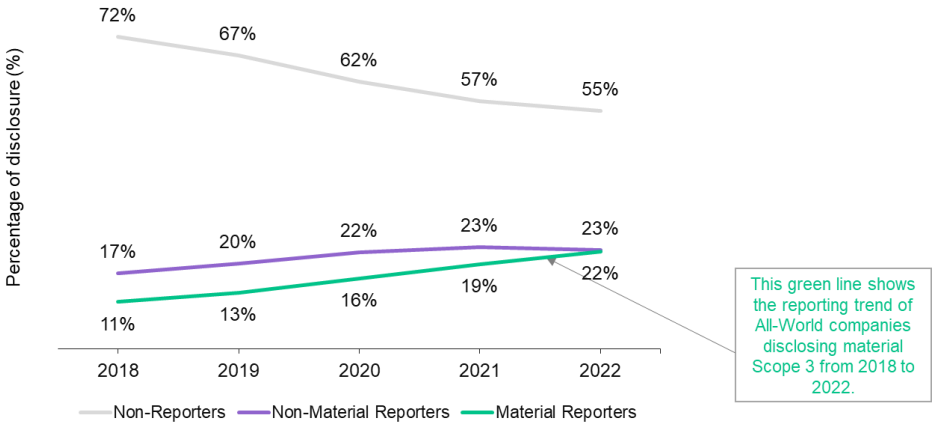
Source: FTSE Russell, June 2024

3.2. Material Scope 3 reporting trends, All World Index

KEY INSIGHT: From 2018 to 2022, there has been a significant increase in the reporting of Scope 3 emissions, with the overall share of reporting companies increasing from 28% to 45%. The share of companies covering the two most material Scope 3 emissions categories in their reporting has increased particularly quickly, doubling from 11% in 2018

to 22% in 2022. Nonetheless, the quality of Scope 3 reporting remains a critical challenge, with more than half of companies that report on Scope 3 still failing to cover the two most material.

Figure 16: Scope 3 emissions trends.

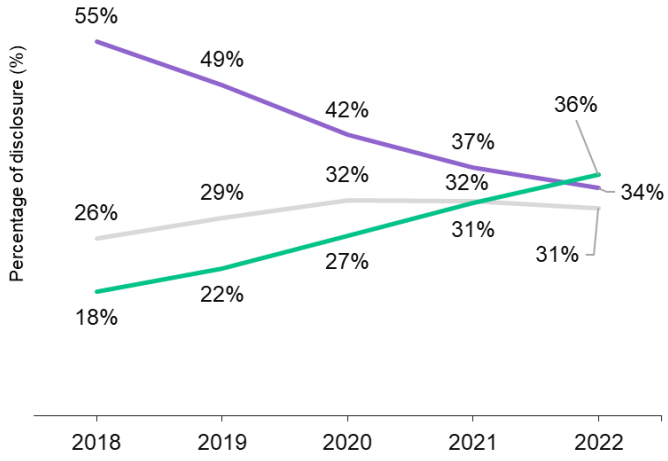


Source: FTSE Russell, June 2024

3.3. Material Scope 3 reporting trends, emerging vs developed markets

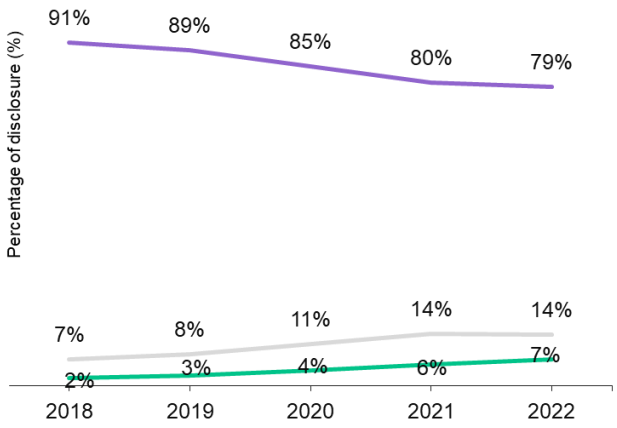
KEY INSIGHT: From 2018 to 2022, there has been a significant increase in the reporting of both material and non-material scope 3 emissions, with notable increases between 2018 and 20219, and 2019 and 2020. This is accompanied by corresponding reductions in the proportion of non-reporters.

Figure 17: All-World Developed market companies reporting trends



Source: FTSE Russell, June 2024

Figure 18: All-World Emerging market companies reporting trends



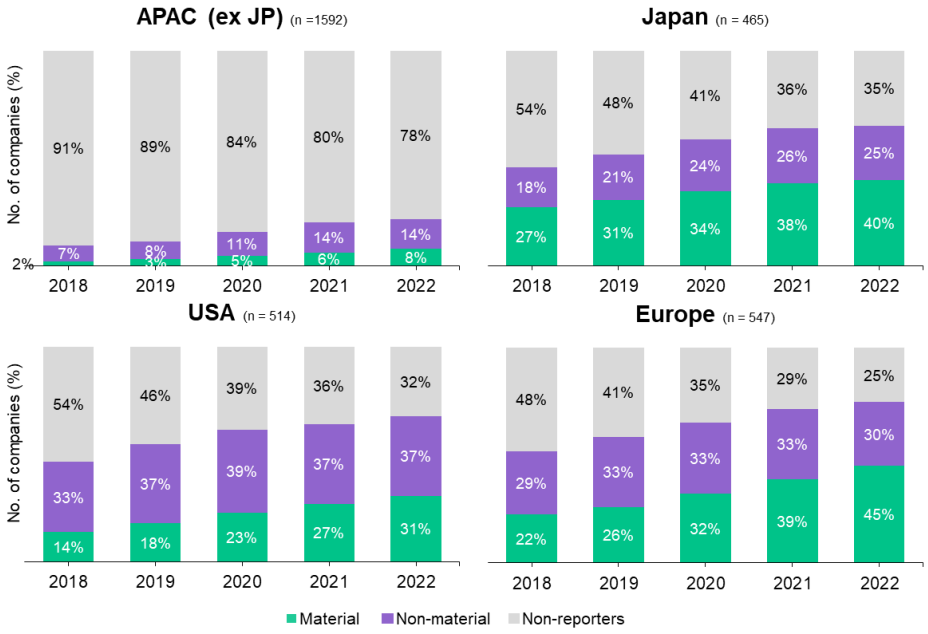
Source: FTSE Russell, June 2024

3.4. Material Scope 3 reporting trends, by regions

KEY INSIGHT: Looking at reporting trends in selected regions, there is an upward trend in material Scope 3 reporting across all regions, particularly with Europe leading the way, followed by the USA, Japan and then APAC (excluding Japan). Japanese companies report more material Scope 3 than peers in APAC and the USA, and only slightly trails behind Europe.

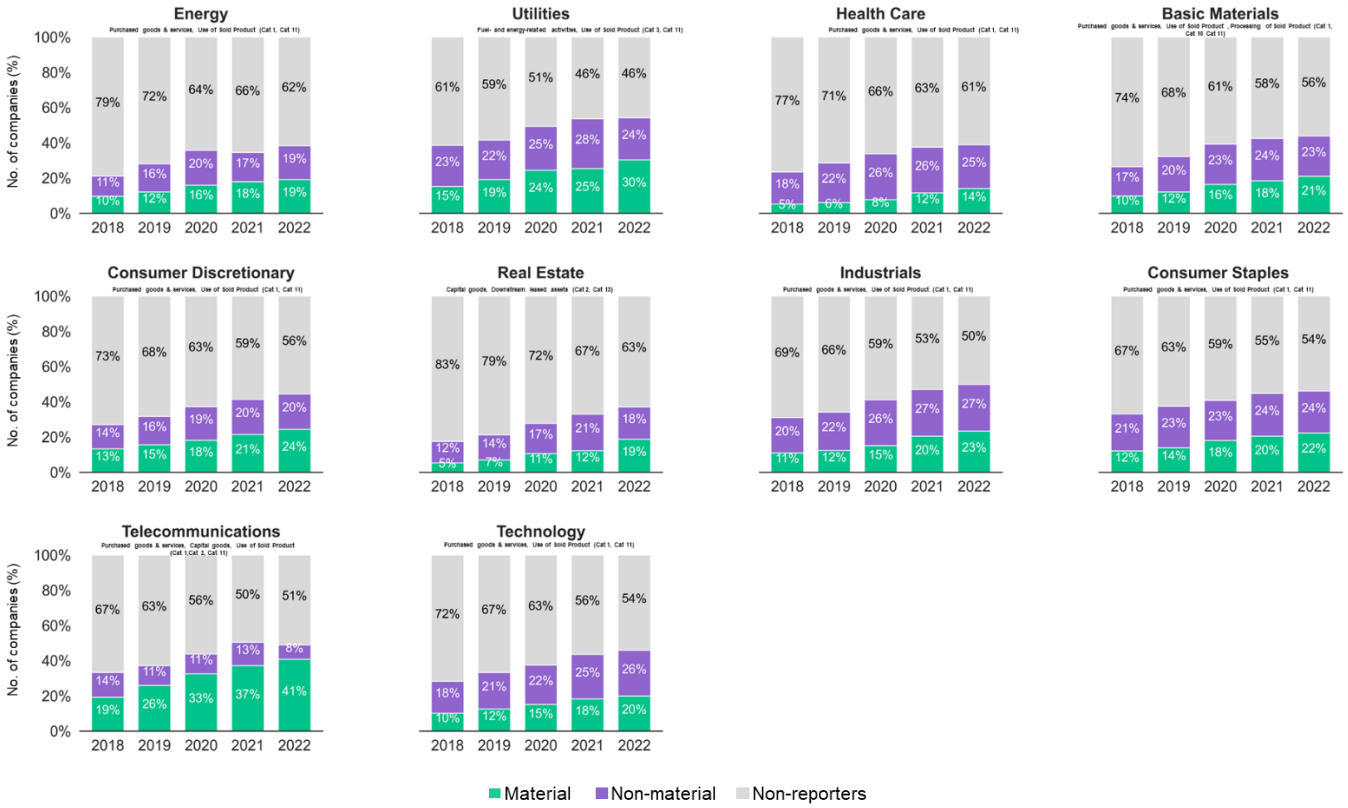
Looking at sectoral reporting trends, there is a clear upward trend across all sectors, with some sectors like Industrials, Consumer Discretionary and Technology showing particularly high increases.

Figure 19: Scope 3 emissions trends across selected regions.



Source: FTSE Russell, June 2024

Figure 20: Scope 3 emissions trends across sectors



Source: FTSE Russell, June 2024

4. Using materiality filters to assess portfolio Scope 3 intensities

4.1. A more realistic estimate of Scope 3 emission levels in portfolios

Where companies omit the most material categories from their reporting, they are likely to substantially underreport their Scope 3 emissions. At portfolio level, focussing on material Scope 3 disclosures provides investors therefore with a more realistic picture of portfolio emissions. Indeed, our data shows that for a broad representative market portfolio, focusing on the material disclosures reveals that the median Scope 3 emissions intensity is likely to be twice as high as suggested by using all Scope 3 disclosures (Figure 21, p.17).

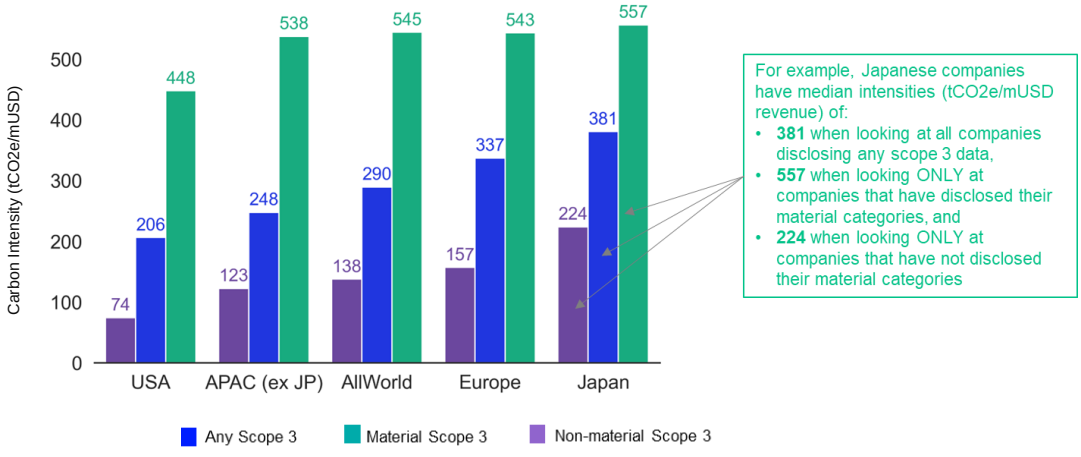
Implications for investors: Rather than using all Scope 3 emissions data, investors may benefit from applying a 'materiality filter', or only include companies that cover material categories, when assessing the Scope 3 intensity of their portfolio. In other words, where the most material categories are not included in a companies' reporting, investors should either disregard the reported Scope 3 data of the company or replace this data with estimates when analysing Scope 3 emissions in their portfolio.

Implications for companies: Companies that already include emissions from material categories in their disclosures may be better prepared for impending regulatory requirements on Scope 3 disclosures, facilitating discussions on value chain emissions with regulators and investors alike. Investors may increasingly disregard disclosures of companies that are not reporting their material categories and replace them estimates. This can often penalise companies as estimation models tend to be conservative and often overestimate actual emissions (Figure 26, p.20).

KEY INSIGHT: Scope 3 emissions data significantly **underestimate value chain emissions** in our coverage. Figure 21 shows that when considering only companies disclosing material disclosures (green bars), median intensities of are on average 4 times higher than for companies that omit material categories from their disclosures (purple bars) and twice as high as median intensities for the full data sample (blue bars).

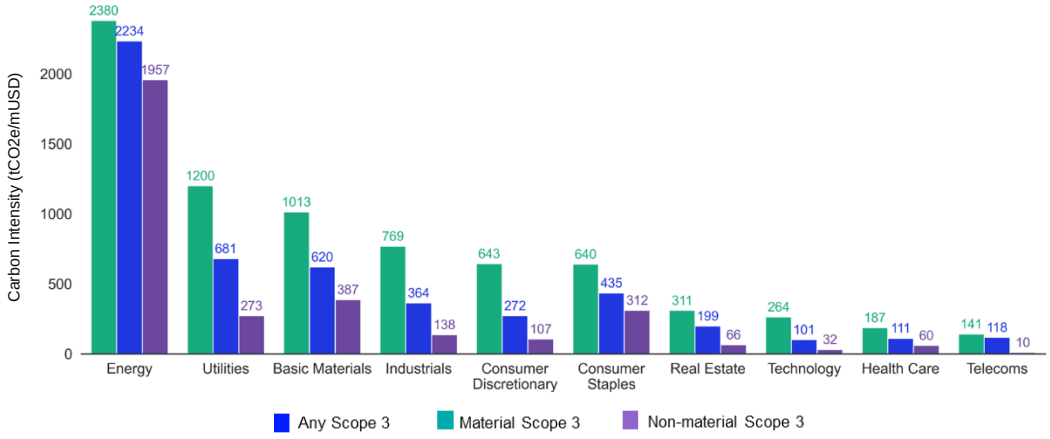
At the ICB Industry level, we observe a similar pattern in Figure 22: higher median intensities when looking at companies that have disclosed the most material categories in their Industry. The energy sector is less impacted by the materiality filter than other sectors, because a large proportion (82%) of companies disclosing Scope 3 data already disclose the most material category ("category 11: Use of Sold Product), which represents the bulk of emissions (~86%).

Figure 21: Scope 3 median carbon intensities (tCO2/mUSD Revenue) by region, Scope 3 vs Material Scope 3 vs Non-Material Scope 3



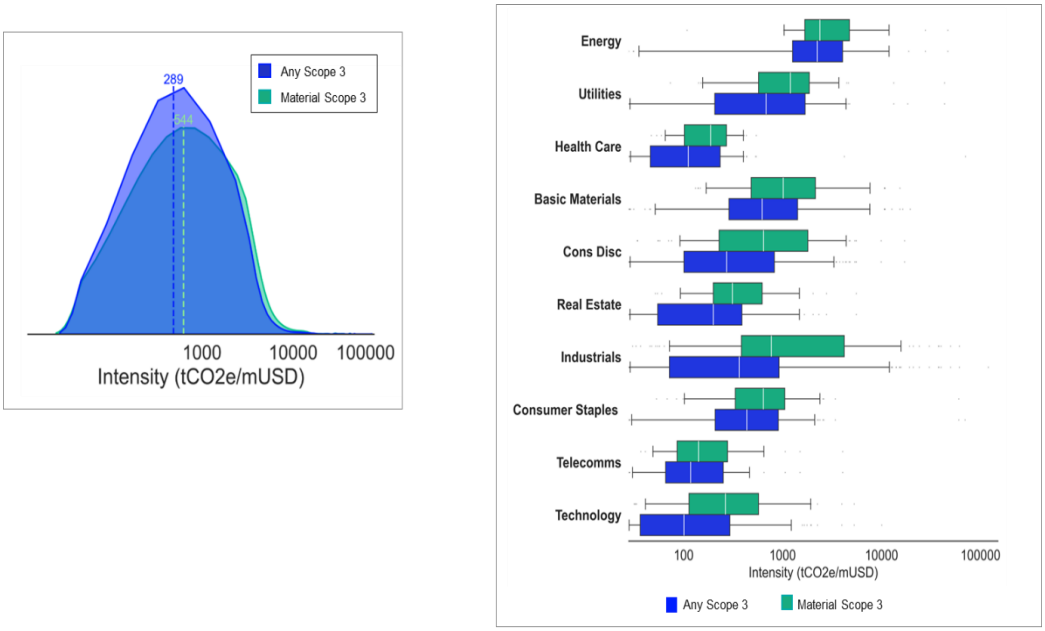
Source: FTSE Russell, June 2024

Figure 22: Breakdown of FTSE All World Scope 3 median carbon intensities (tCO2/mUSD Revenue) by Industry



KEY INSIGHT: A focus on companies reporting material categories shifts the distribution of the intensities. As shown in Figure 22 when picking only companies disclosing material categories, the intensity distribution is more concentrated with less dispersion (green area), resulting in an increased shift in median intensity. The sectoral breakdown in Figure 23 shows the same concentration effect across all sectors, except for the Energy sector where the effect is minimal.

Figure 23: Any Scope 3 vs material Scope 3 intensity distribution, 2022



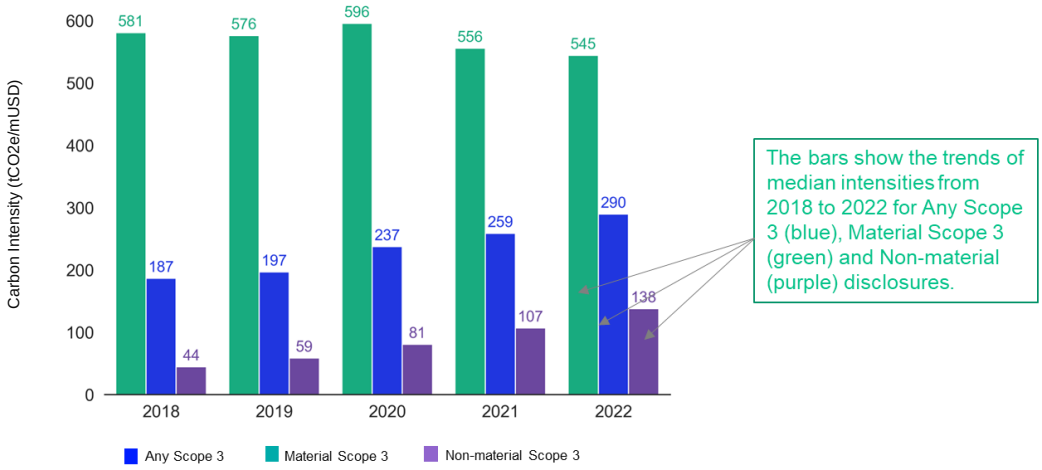
Source: FTSE Russell, June 2024

4.2. A better ability to track trends in Scope 3 emissions.

KEY INSIGHT: The application of a materiality filter also results in a more accurate and realistic trend analysis. The emission intensities of companies with poor disclosure practices that omit material categories (purple bar) tends to *increase* over time, as they gradually improve their reporting practices. This is at odds with the trends for Scope 1 & 2 emissions, and does not reflect growth in real world emissions, but results from gradual improvements in capturing companies' existing Scope 3 emissions in their disclosures.

Application of the materiality filter enables not only the capture of the level of emissions in a portfolio more accurately, but also allows investors to track it better over time – indeed the median Scope 3 intensity of companies with material Scope 3 disclosures (green bar) is much higher, but also decreases over time, broadly in line with what we would expect based on Scope 1 & 2 emission trends in the same portfolio.

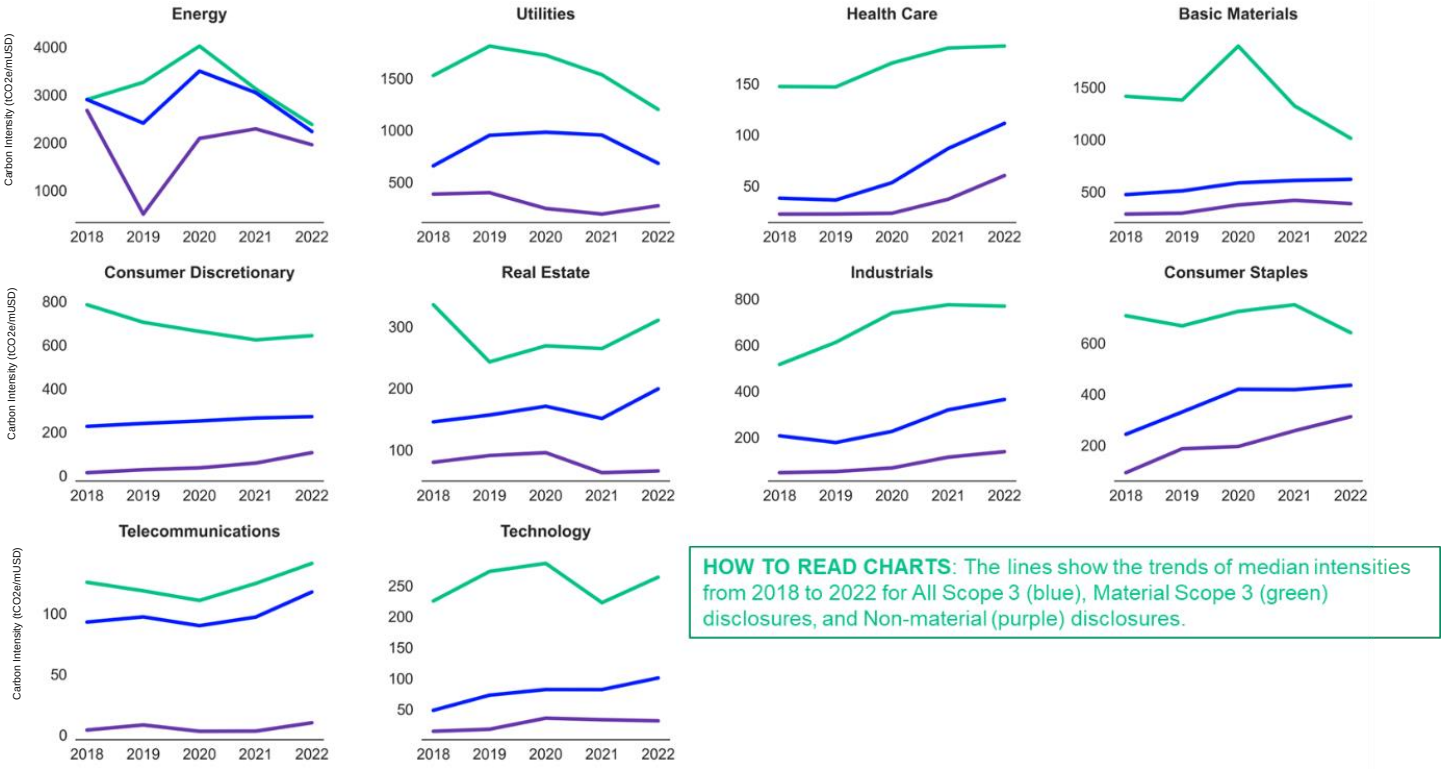
Figure 24: FTSE All World median carbon intensity 2018-2022, Scope 3 vs Material Scope 3 vs Non-Material Scope 3



Source: FTSE Russell, June 2024

KEY INSIGHT: Looking at the median intensities for Scope 3 and Material Scope 3 sectors, such as Health Care and Industrials, show somewhat upward trends while the opposite is true for Utilities. The remaining sectors, such as Technology and Telecoms, either exhibit undulating trends with dips at various times. The materiality effect is least pronounced for the Energy sector compared to other sectors.

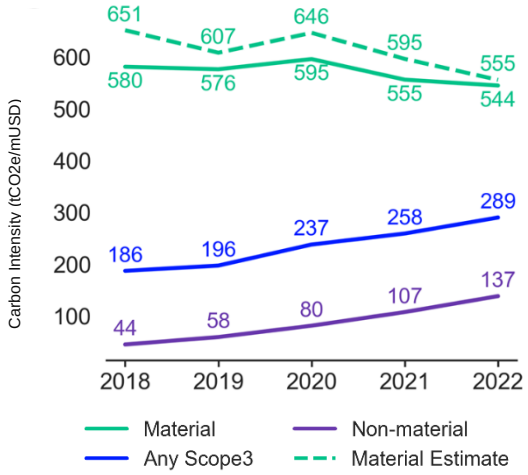
Figure 25: Sectoral median carbon intensities 2018-2022, Scope 3 vs Material Scope 3 vs Non –Material Scope 3



Source: FTSE Russell, June 2024

KEY INSIGHT: Figure 26 shows that estimated median intensity of companies disclosing material Scope 3 (the dashed green line) is usually higher than actual reported figures, pointing as an incentive for non-reporting companies to disclose their material categories to avoid investors using conservative estimates that are likely to penalise companies. Investors should only include companies that cover material categories, and use material estimates for companies that do not, when assessing the Scope 3 intensity of their portfolio.

Figure 26: Median carbon intensity 2018-2022, Scope 3 vs Material Scope 3 vs Non-Material Scope 3 vs Estimated Material Scope 3 (dashed line)



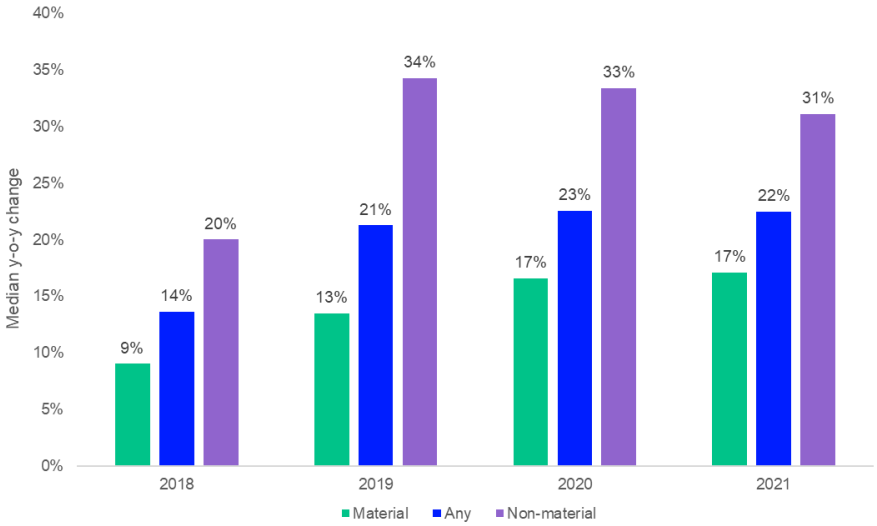
Source: FTSE Russell, June 2024

4.3. Reduced volatility in Scope 3 data

Volatility is one of the main challenges for integrating Scope 3 data into investment decisions. Focusing on material categories can reduce volatility and significantly reduce noise in the data.

KEY INSIGHT: Figure 27 shows the median y-o-y change (positive or negative) in reported Scope 3 data between *year* and *year+1*. For 2022, it shows that companies that consistently provide material Scope 3 disclosures (green bar) exhibit a much lower y-o-y volatility (17%) than companies that exclude these categories from their disclosures (31%).

Figure 27: Median y-o-y change in reported Scope 3 data 2018-2021



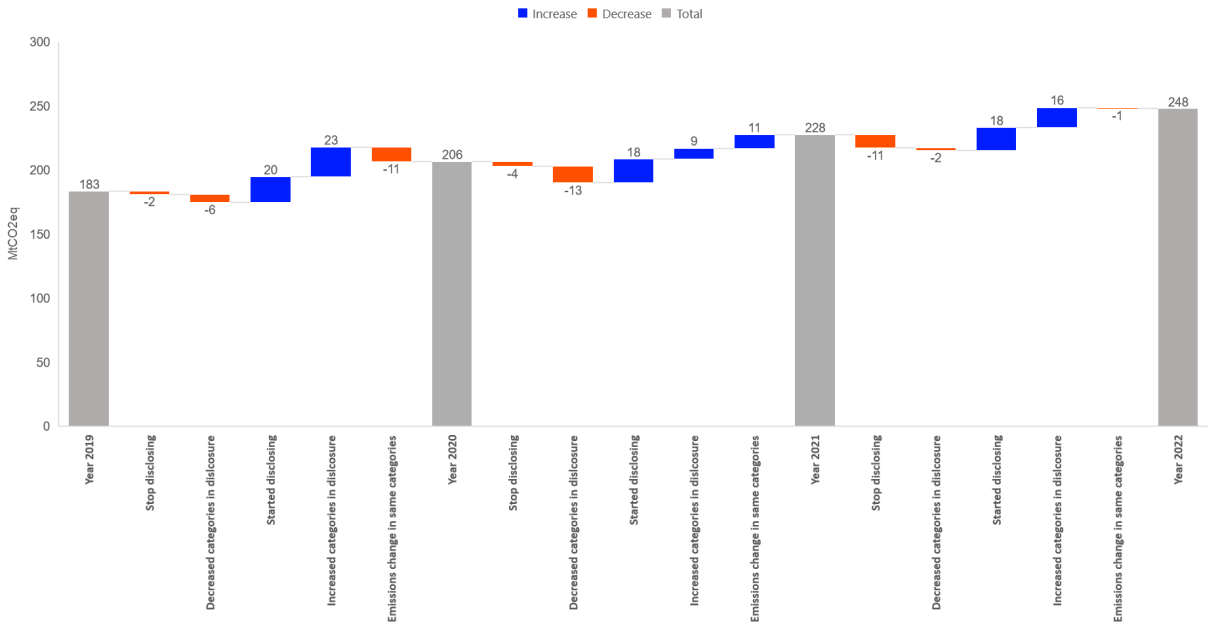
Source: FTSE Russell, June 2024

KEY INSIGHT: At the portfolio level, Scope 3 emissions are impacted by a combination of effects over time:

- changes disclosed emissions in Scope 3 categories that are consistently reported over time,
- additional Scope 3 emissions from companies that commence reporting or add new categories to their Scope 3 reporting
- Scope 3 emissions that are removed from disclosures as companies either cease to report their Scope 3 emissions or remove categories from their Scope 3 reporting.

Figure 28 shows how these different effects impact the evolution of disclosed absolute Scope 3 emissions over time for a fixed portfolio of 2022 FTSE All-World Index constituents from 2019 onwards. It demonstrates that the increase in absolute Scope 3 emissions over time is mainly due to companies either starting to report or adding new categories in their Scope 3 disclosures. The size and the contribution (positive or negative) of the emissions changes is less influential and varies in direction from one year to another.

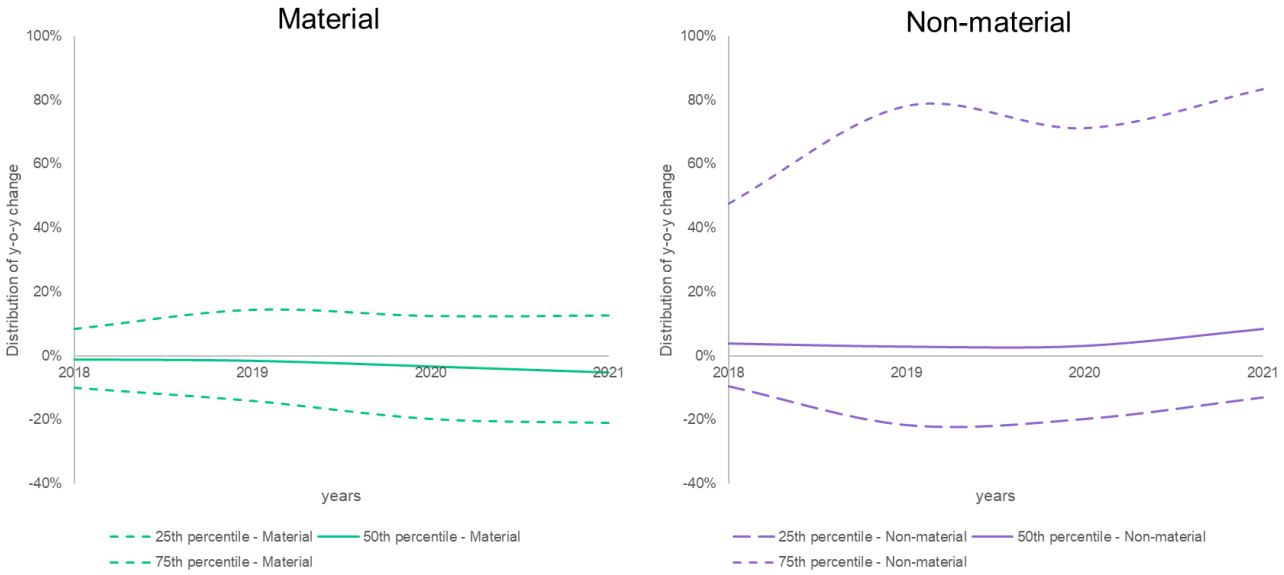
Figure 28: Decomposition of changes to the portfolio emissions of 2022 FTSE All World constituents (2019 to 2022).



Source: FTSE Russell, June 2024

KEY INSIGHT: Separating companies disclosing on their material categories, Figure 29 shows the y-o-y change at the median, the 25th percentile and 75th percentile for each year from 2018 to 2021. Like Figure 27 it shows that Scope 3 disclosures that don't cover material categories are much more volatile, but also trend upwards over time.

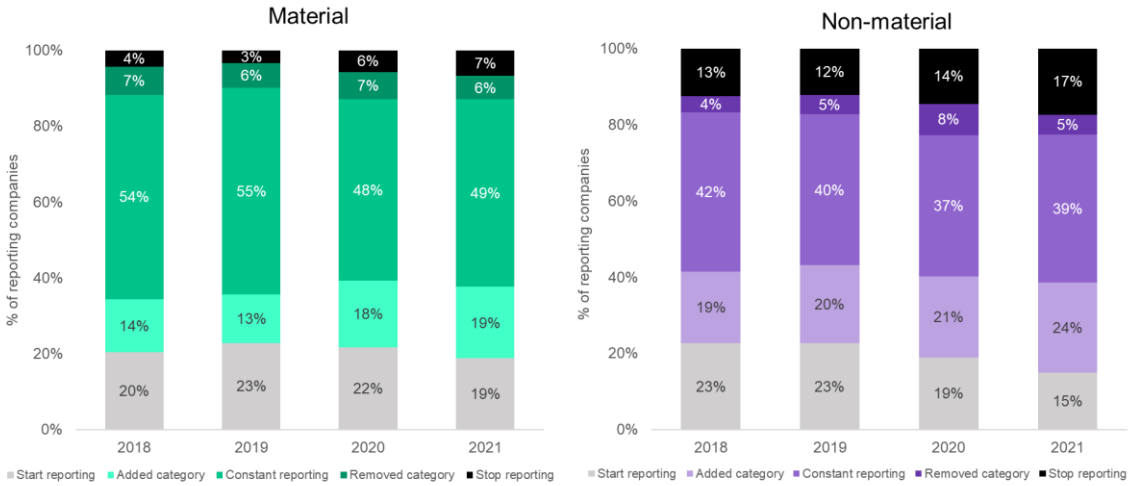
Figure 29: Median, the 25th and 75th percentiles y-o-y changes of Scope 3 carbon intensities 2018-2021, Material vs Non–Material Scope 3



Source: FTSE Russell, June 2024

KEY INSIGHT: Figure 30 shows that changes to reporting categories are a key contributor to higher volatility of non-material disclosures. For example, 24% of companies that did not cover their material disclosures in 2021 added new reporting categories to their disclosures in the following year, and 17% stopped disclosing altogether.

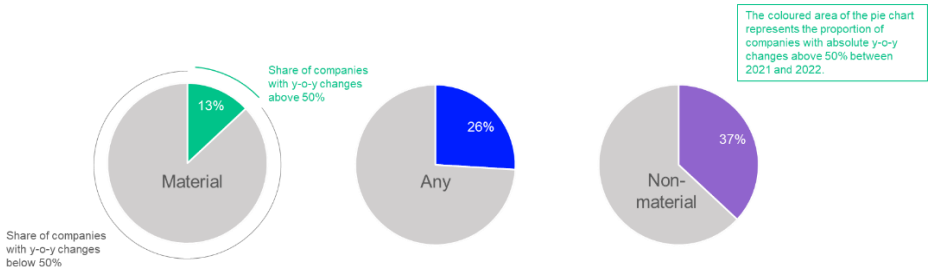
Figure 30: Changes in reporting 2018-2021, by proportion of companies (%), Material vs Non–Material Scope 3



Source: FTSE Russell, June 2024

KEY INSIGHT: The materiality filter also reduces the number of outliers. Figure 31 shows the share of reported values with a y-o-y change above 50% between 2021 and 2022 for any, material and non-material Scope 3. For companies reporting Scope 3 emissions in 2021 and 2022, only 13% of companies that consistently provide material disclosures have y-o-y changes above 50%, this is half of the companies that reported any Scope 3 (26%) and almost a third of the companies that reported non-material Scope 3 (37%). Historical trends and regional differences are provided in the Annex.

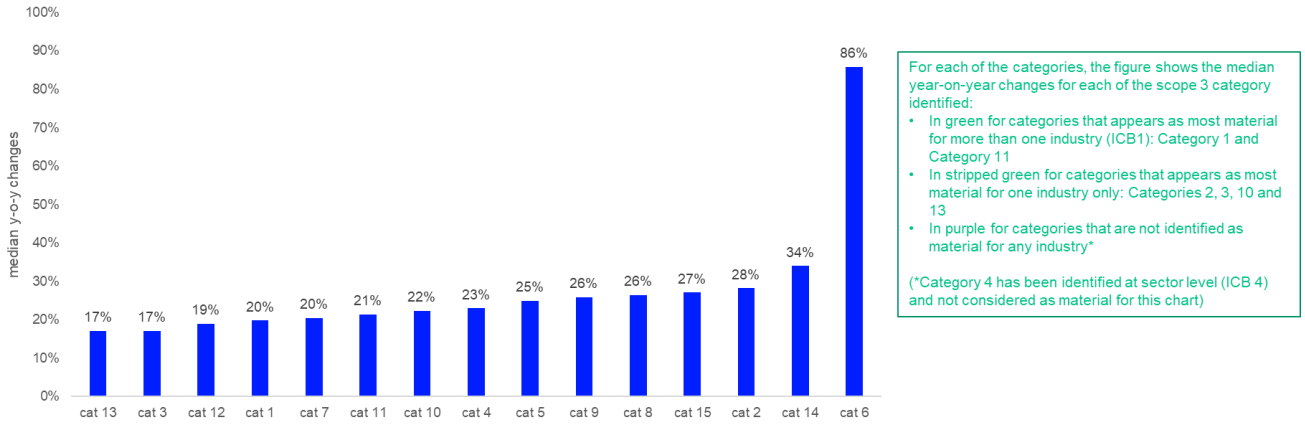
Figure 31: Share of companies with Scope 3 by intensity y-o-y change above 50% in 2021-2022



Source: FTSE Russell, June 2024

KEY INSIGHT: Categories identified as material are on average slightly less volatile than most of the other categories. Figure 32 shows the median year-on-year changes for each Scope 3 category. Most of the categories identified as material for most of sectors (Categories 1 and 11) have a median y-oy-change around 20%.

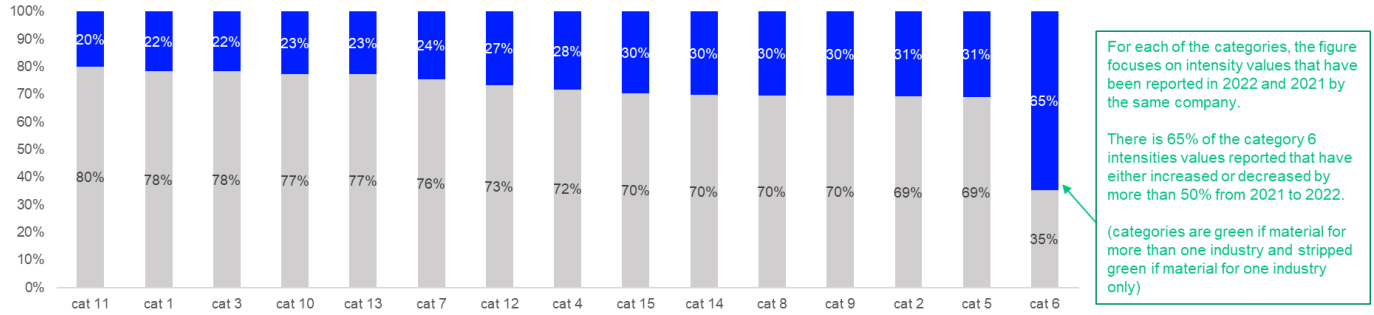
Figure 32: median y-o-y changes of Scope 3 category between 2021 and 2022



Source: FTSE Russell, June 2024

KEY INSIGHT: Categories identified as material tend have significantly less volatility in their values than other categories. Similar to Figure 31, Figure 33 below shows the share of reported values, by category, with a y-o-y change above 50% between 2021 and 2022. They are represented in bar charts rather than pie charts to facilitate the figure's interpretation. Categories identified as material for most of sectors (Categories 1 and 11) have less high volatile values than other categories.

Figure 33: Share of companies with Scope 3 carbon intensity y-o-y change above 50% between 2021 and 2022, per category



Source: FTSE Russell, June 2024

Annex

For all charts in Annex: *Source: FTSE Russell, June 2024*

Median Intensity and disclosure rate across categories

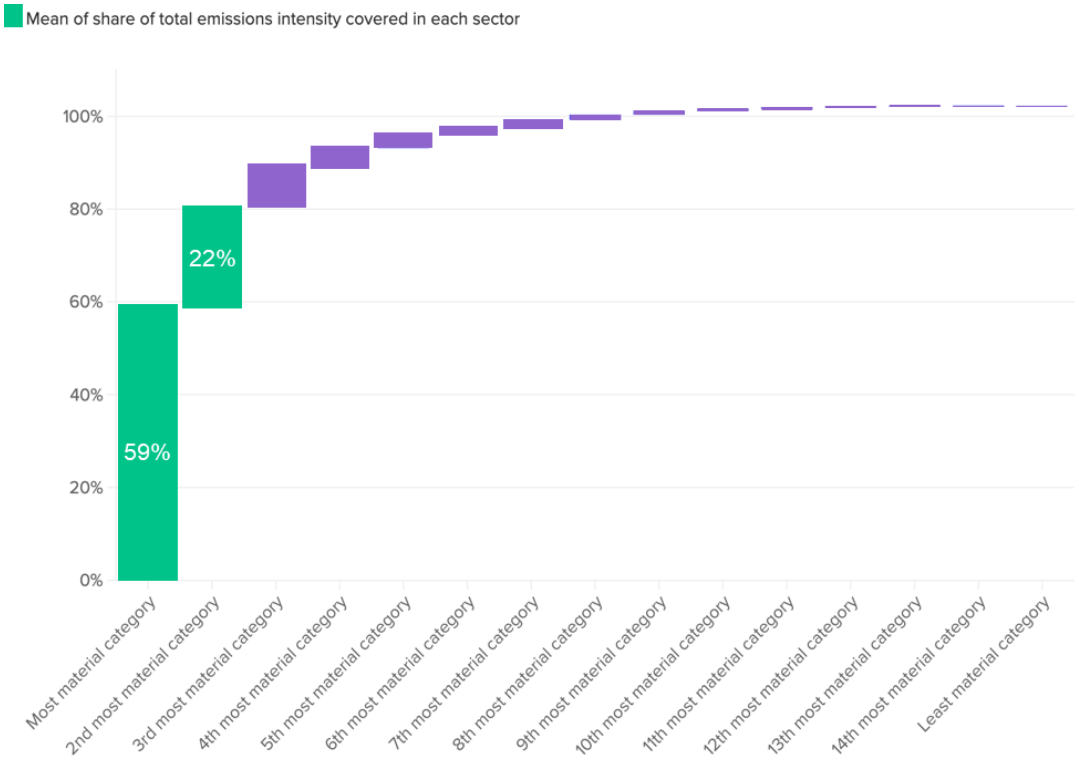
Figure 34: Average disclosure rate and carbon intensity (mtCO2e/mUSD) across categories per Industry, 2018-2022

		Cat 1	Cat 2	Cat 3	Cat 4	Cat 5	Cat 6	Cat 7	Cat 8	Cat 9	Cat 10	Cat 11	Cat 12	Cat 13	Cat 14	Cat 15
Basic Material	Median Intensity	**268**	18	39	22	3	0	1	0	18	**158**	**353**	117	0	na	51
	Disclosure rate	**33%**	22%	30%	30%	26%	30%	27%	6%	21%	**13%**	**11%**	14%	4%	< 1%	11%
Consumer Discretionary	Median Intensity	**154**	**10**	3	9	1	1	2	0	6	2	**239**	5	1	4	2
	Disclosure rate	**29%**	**21%**	26%	26%	29%	32%	28%	5%	15%	4%	**18%**	18%	7%	6%	7%
Consumer Staples	Median Intensity	**305**	12	7	**18**	1	0	1	1	16	16	**38**	10	2	4	9
	Disclosure rate	**34%**	22%	30%	**33%**	32%	35%	26%	8%	26%	7%	**17%**	24%	7%	5%	8%
Energy	Median Intensity	**128**	6	17	23	1	0	0	0	13	**187**	**3176**	30	0	3	60
	Disclosure rate	**18%**	8%	14%	18%	14%	19%	14%	4%	14%	**8%**	**24%**	6%	1%	3%	6%
Health Care	Median Intensity	**71**	**8**	3	5	1	1	2	1	3	1	**9**	1	0	na	0
	Disclosure rate	**23%**	**19%**	22%	22%	25%	30%	23%	6%	12%	2%	**9%**	15%	4%	< 1%	4%
Industrials	Median Intensity	**122**	11	4	**11**	1	1	2	0	9	8	**393**	3	1	1	4
	Disclosure rate	**30%**	22%	31%	**25%**	29%	36%	29%	6%	15%	4%	**17%**	15%	7%	1%	6%
Real Estate	Median Intensity	22	**42**	7	1	4	0	1	0	16	na	**74**	3	**83**	na	12
	Disclosure rate	17%	**12%**	18%	6%	18%	22%	16%	5%	3%	< 1%	**4%**	3%	**17%**	< 1%	3%
Technology	Median Intensity	**46**	**8**	2	2	0	1	1	0	1	1	**99**	0	0	na	2
	Disclosure rate	**30%**	**22%**	26%	24%	27%	35%	30%	10%	16%	5%	**15%**	13%	4%	< 1%	6%
Telecomms	Median Intensity	**41**	**16**	5	1	0	0	1	1	2	na	**14**	0	6	1	3
	Disclosure rate	**36%**	**28%**	32%	29%	31%	40%	33%	12%	16%	< 1%	**29%**	20%	13%	7%	6%
Utilities	Median Intensity	36	**39**	**324**	2	1	0	0	0	3	7	**733**	1	1	na	33
	Disclosure rate	29%	**19%**	**38%**	20%	25%	38%	29%	6%	9%	3%	**25%**	2%	3%	< 1%	7%

Identifying the most material categories for each sector

Based on our latest research, we suggest that investors should consider a company's Scope 3 disclosures as covering their material emissions if, based on its sector classification, its Scope 3 disclosures cover at least their top two categories. Similarly, we suggest that companies should cover at least the two most material categories for their sector in their Scope 3 reporting to align with the GHG Protocol. Figure 35 shows that just one material category would provide significantly lower coverage (on average 59% of total Scope 3 emissions in each sector), while the gains from adding an additional, third category are relatively marginal (increasing coverage by an average of just 8%).

Figure 35: The two most material categories in each sector account, on average, for over 81% of total Scope 3 emissions intensity



Reduced volatility in Scope 3 data

Figure 36: Share of companies with Scope 3 by intensity y-o-y change above 50% from 2019 to 2022

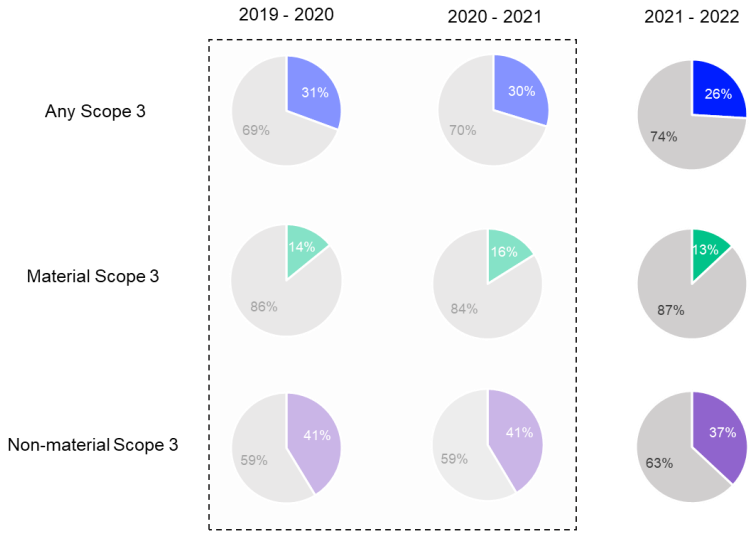
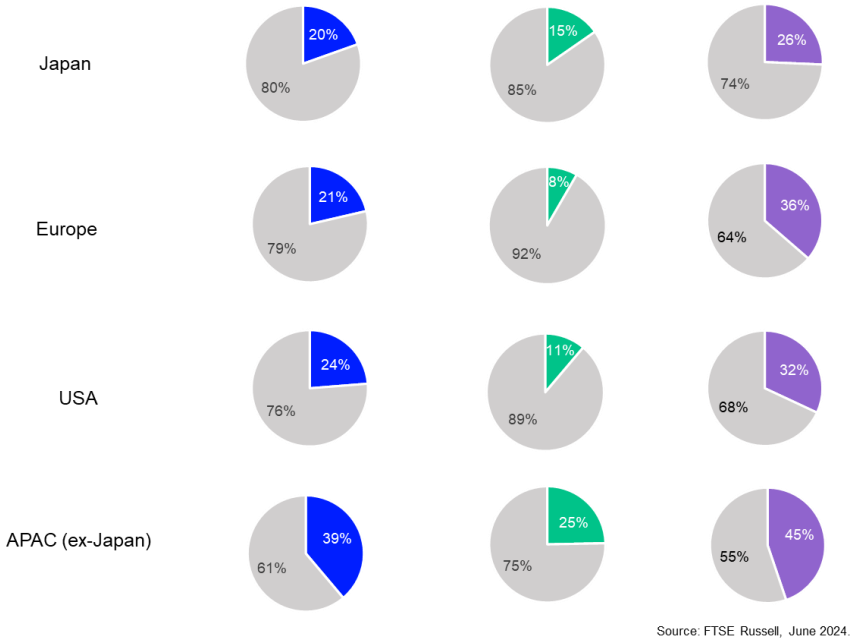


Figure 37: Share of companies with Scope 3 by intensity y-o-y change above 50% from 2021 to 2022, by region



Source: FTSE Russell, June 2024.

Figure 38: Median y-o-y changes of Scope 3 category between 2021 and 2022

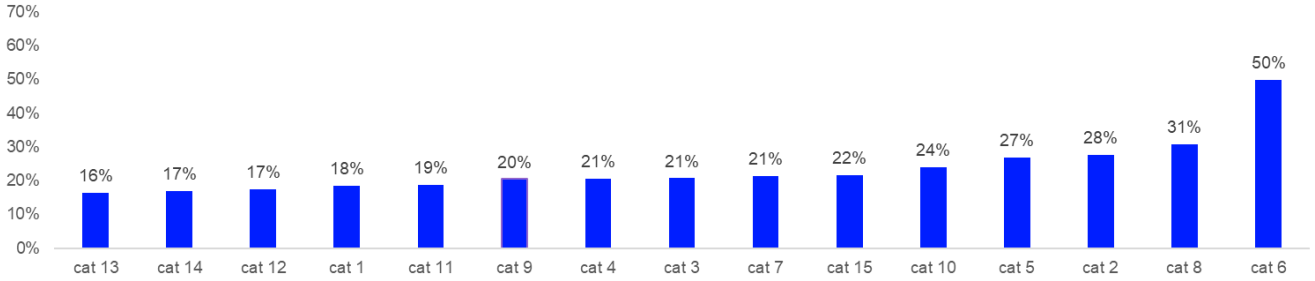


Figure 39: Median y-o-y changes of Scope 3 category between 2019 and 2020

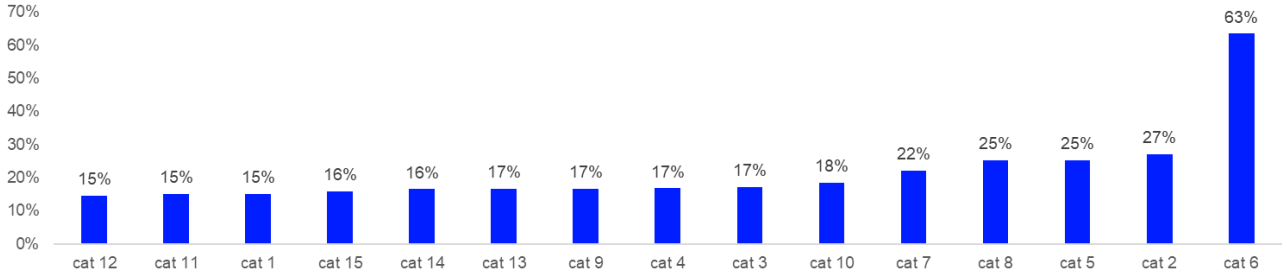


Figure 40: Share of companies with Scope 3 carbon intensity y-o-y change above 50% between 2020 and 2021 per category

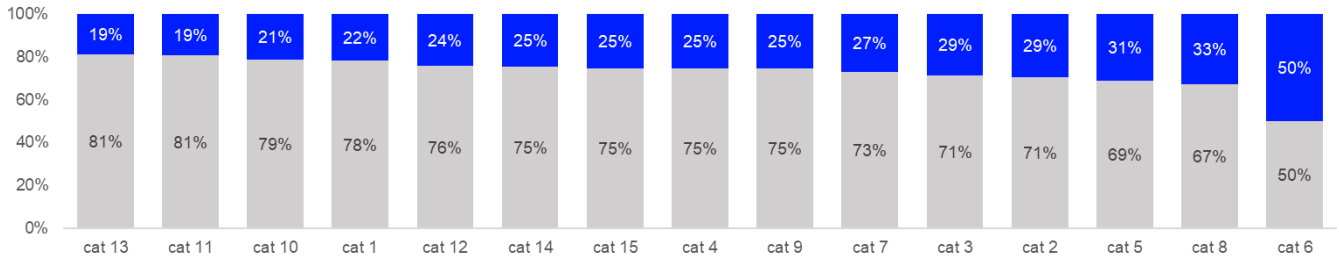


Figure 41: Share of companies with Scope 3 carbon intensity y-o-y change above 50% between 2019 and 2020, per category

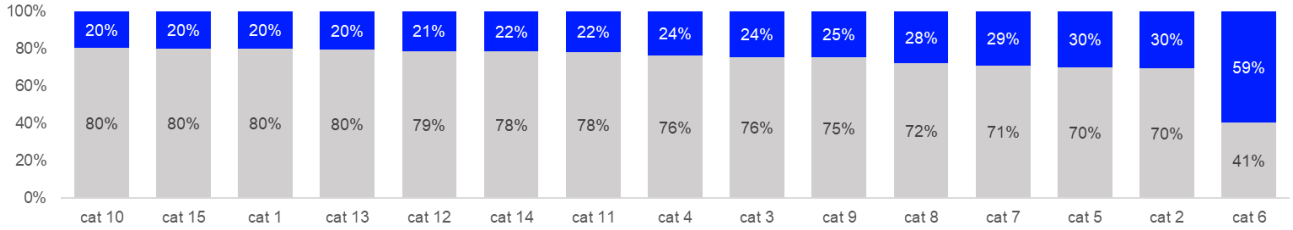
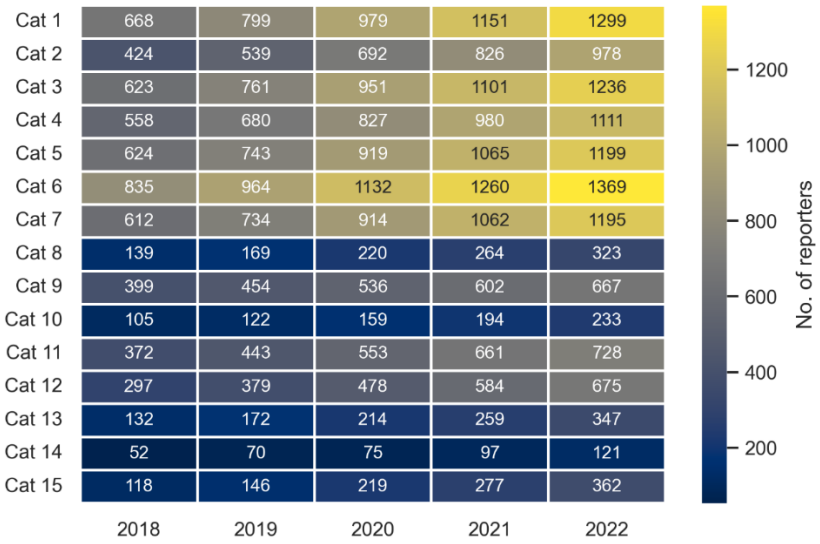


Figure 42: Scope 3 Category breakdown, number of reporting companies, 2018-2022



Scope 3 reporting trends – breakdown by category

Figure 43: Scope 3 Category breakdown by emissions volume, 2018-2022

Figure 44: Scope 3 Category breakdown, number of reporting companies per region, 2022

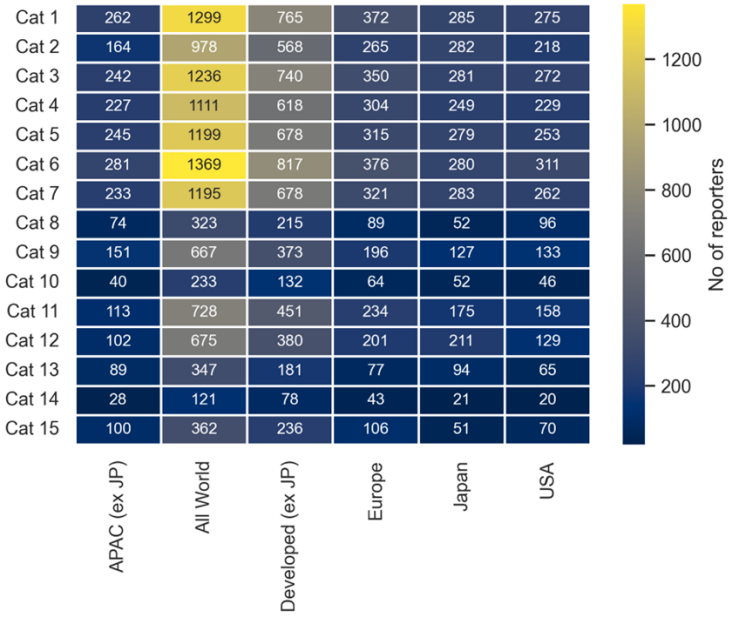
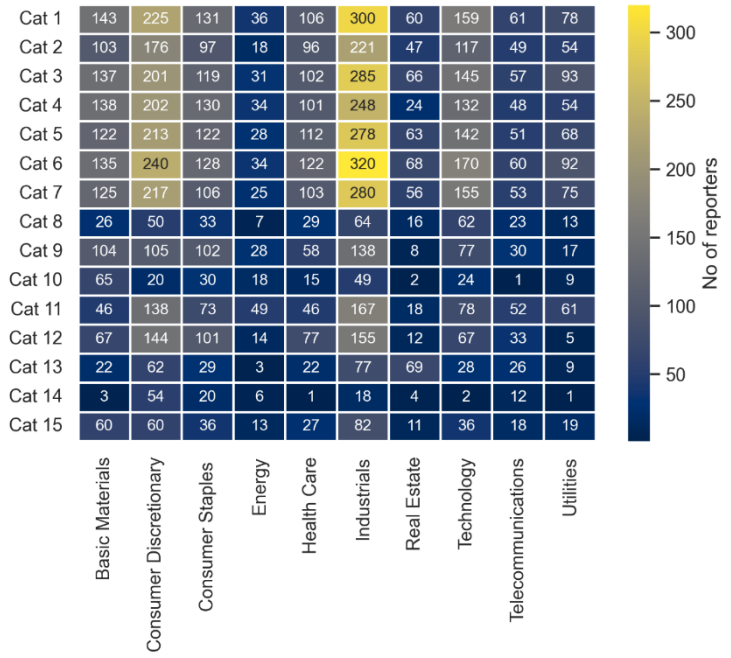


Figure 45: Scope 3 Category breakdown, number of reporting companies per sector, 2022



Scope 3 distribution, material vs any scope 3

Figure 46: Any Scope 3 vs material Scope 3 intensity distribution, 2022

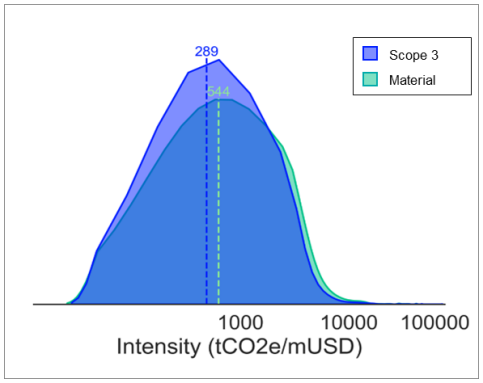
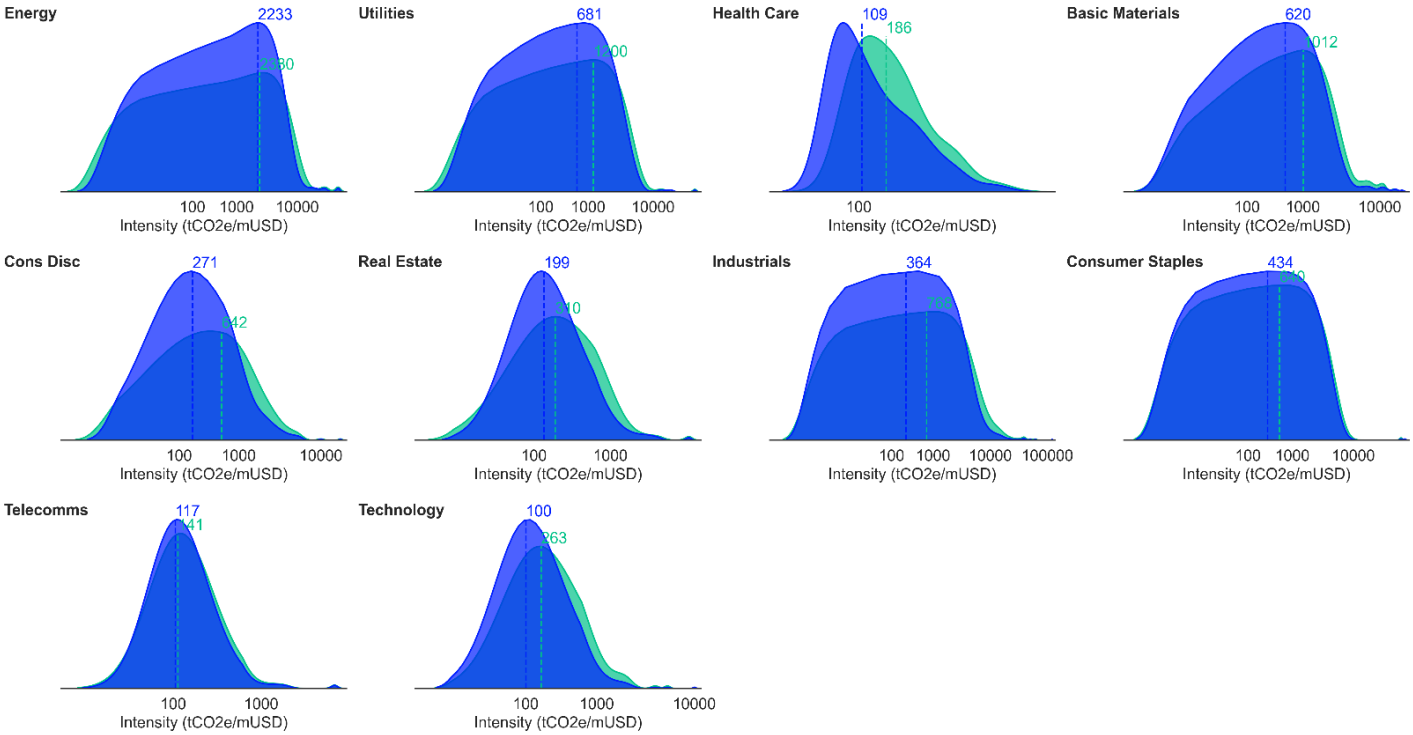


Figure 47: Any Scope 3 vs material Scope 3 intensity distribution per sector, 2022



Scope 3 emissions of equities

Scope 3 reporting trends, All World Index

KEY INSIGHT: From 2018 to 2022, there has been a significant increase in the reporting of Scope 3 emissions, with notable increases between 2018 and 20219, and 2019 and 2020. This is also accompanied by a notable reduction in the proportion of non-reporters.

Figure 48: Scope 3 emissions trends of FTSE All-World companies, 2018-2022 (n =3421)

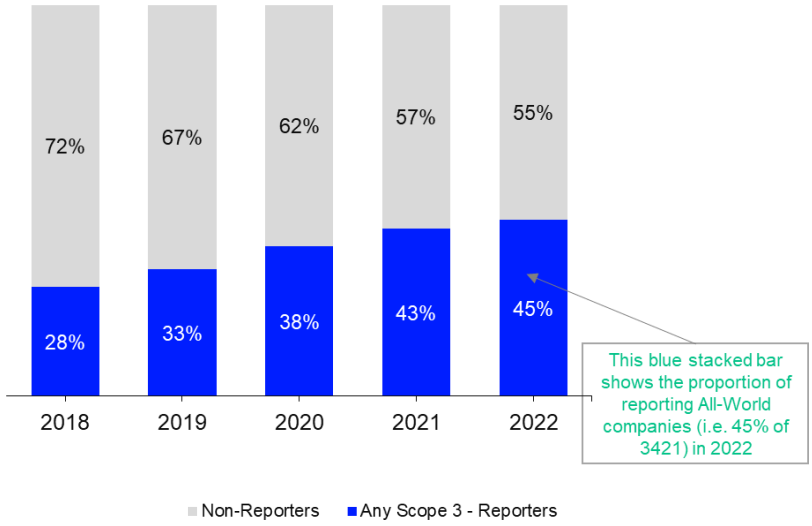
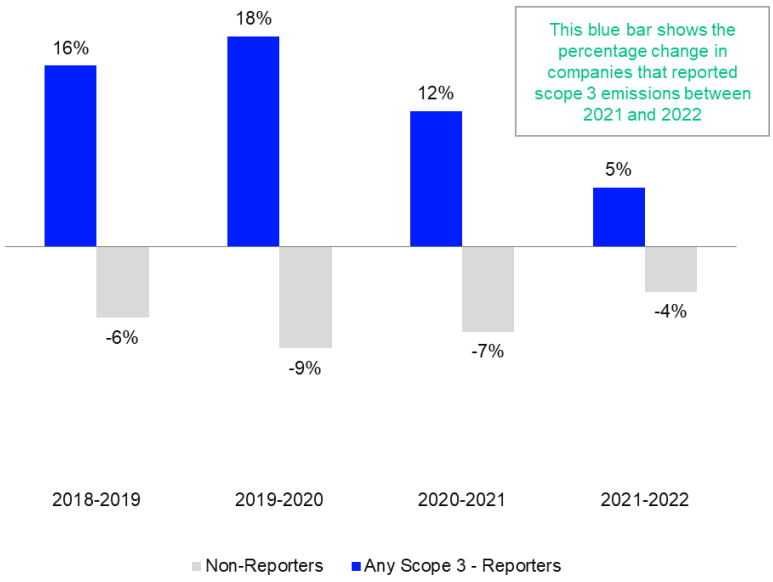


Figure 49: Annual percentage change in reporting trends, 2018-2022



Scope 3 reporting trends, emerging vs developed markets

KEY INSIGHT: There is a general increase in Scope 3 reporting across the developed and emerging markets, with notable increases between 2019 and 2020, and 2021 and 2022. Conversely, both markets have seen a reduction in the proportion of companies not reporting Scope 3 at all, indicating an overall improvement in Scope 3 reporting in both markets.

Figure 50: Proportion of All-World companies reporting Scope 3, 2018-2022, developed vs emerging markets

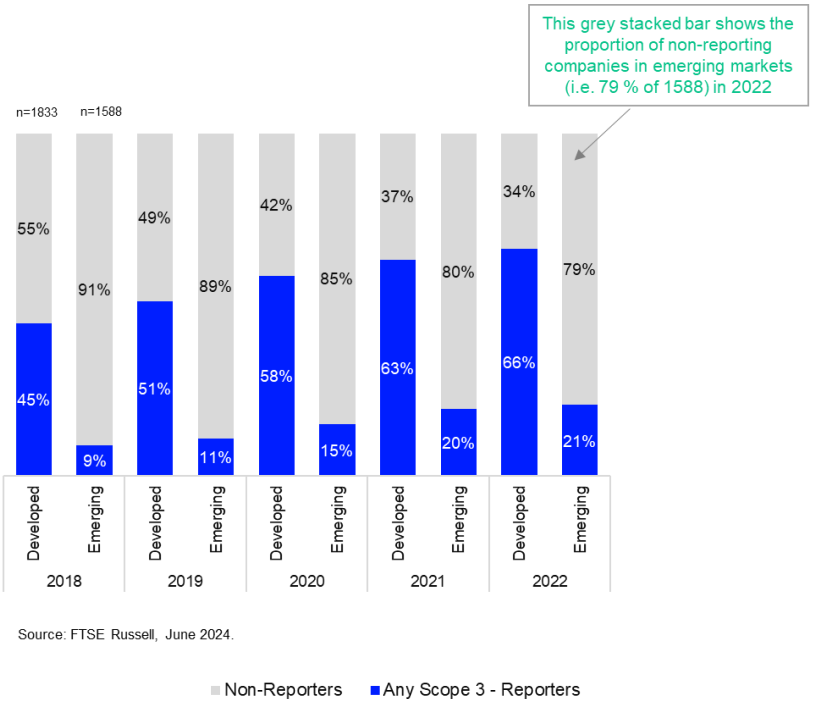
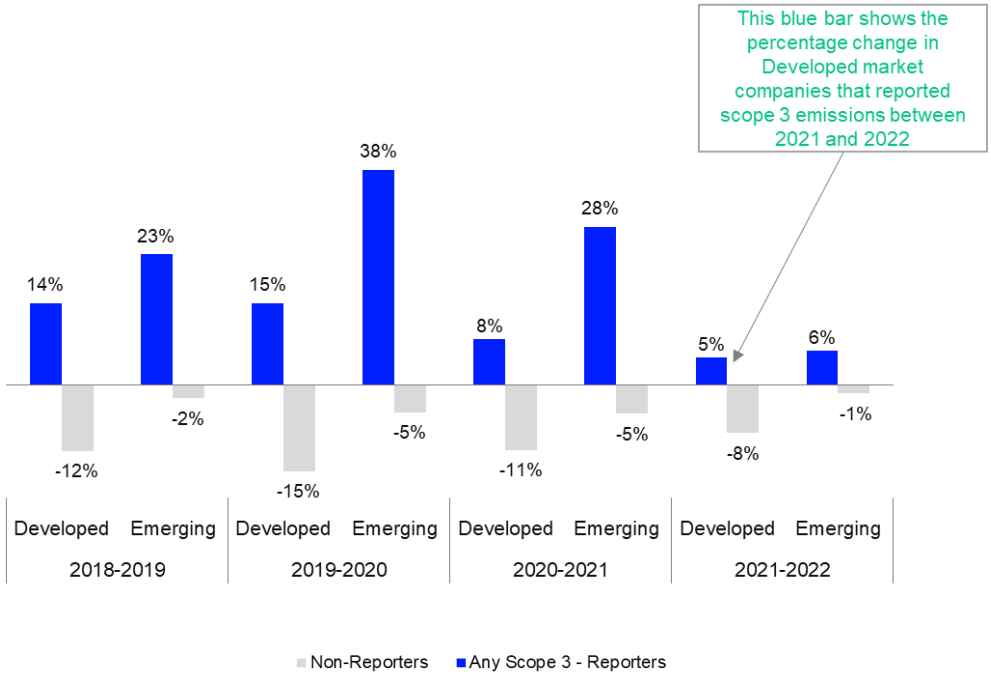


Figure 51: Annual percentage change in reporting trends, 2018-2022, developed vs emerging markets



Scope 3 reporting trends, by regions

KEY INSIGHT:

- Looking at reporting trends in selected regions, there is an upward trend in Scope 3 reporting across all regions, particularly with Europe leading the way, followed by the USA, Japan and then APAC (excluding Japan).
- Looking at sectoral reporting trends, there is a clear upward trend across all sectors, with some sectors like Industrials, Consumer Discretionary and Technology showing particularly high increases.

Figure 52: Proportion of All-World companies reporting Scope 3 per region, 2018-2022

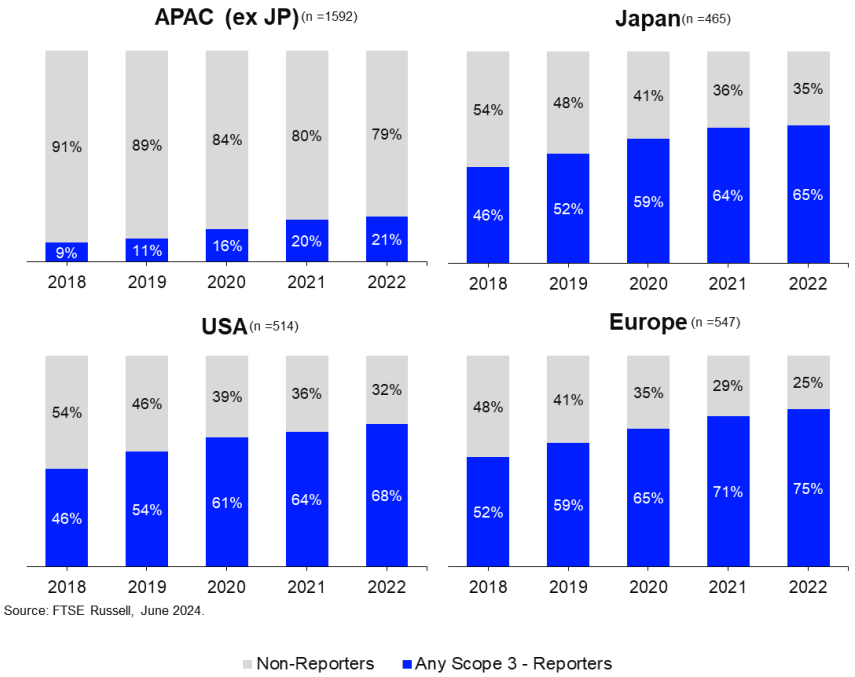


Figure 53: Proportion of All-World companies reporting Scope 3 per sector, 2018-2022

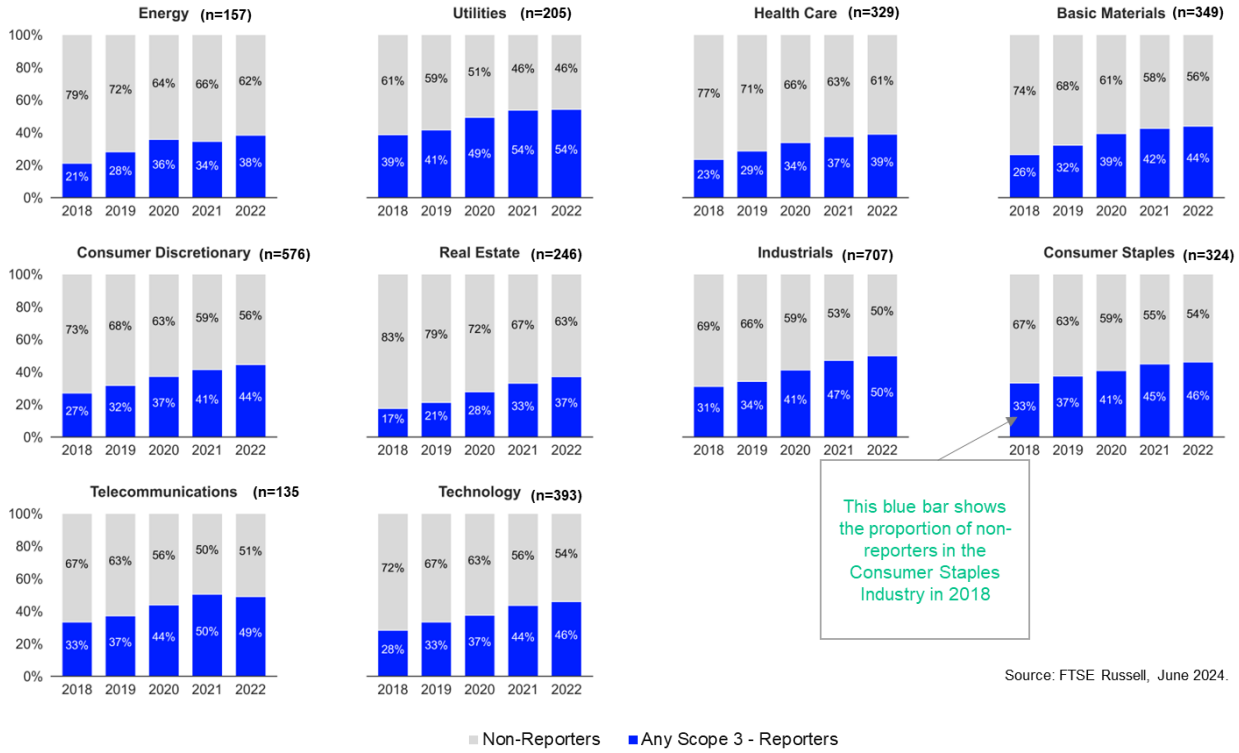


Figure 54: Median intensities across material and non-material Scope 3 categories per sector, 2018-2022 (detailed version with subsector granularity)

Industry (ICB. 1)	Super Sector/Sector (ICB. 2/3)	ICB code	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5	Cat 6	Cat 7	Cat 8	Cat 9	Cat 10	Cat 11	Cat 12	Cat 13	Cat 14	Cat 15	Total
Basic Materials	Basic Resources	5510	149	20	46	27	2	0	1	0	26	158	1106	4	0	0	52	1,593
			31%	15%	26%	27%	21%	27%	21%	3%	20%	17%	7%	8%	3%	1%	10%	
	Chemicals	5520	376	17	34	17	3	0	1	0	14	105	228	167	1	9	51	1,024
			36%	29%	34%	34%	32%	33%	32%	9%	22%	8%	15%	21%	5%	1%	13%	
Consumer Discretionary		40	154	10	3	9	1	1	2	0	6	2	239	5	1	4	2	437
			29%	21%	26%	26%	29%	32%	28%	5%	15%	4%	18%	18%	7%	6%	7%	
Consumer Staples		45	305	12	7	18	1	0	1	1	16	16	38	10	2	4	9	441
			34%	22%	30%	33%	32%	35%	26%	8%	26%	7%	17%	24%	7%	5%	8%	
Energy		60	128	6	17	23	1	0	0	0	13	187	3176	30	0	3	60	3,645
			18%	8%	14%	18%	14%	19%	14%	4%	14%	8%	24%	6%	1%	3%	6%	
Health Care		20	71	8	3	5	1	1	2	1	3	1	9	1	0	na	0	105
			23%	19%	22%	22%	25%	30%	23%	6%	12%	2%	9%	15%	4%	< 1%	4%	
Industrials		50	122	11	4	11	1	1	2	0	9	8	393	3	1	1	4	572
			30%	22%	31%	25%	29%	36%	29%	6%	15%	4%	17%	15%	7%	1%	6%	
Real Estate	Real Estate Investment & Services Development	351010	20	22	2	1	2	0	0	1	3	na	130	2	33	0	12	230
			13%	8%	11%	5%	11%	15%	10%	3%	2%	< 1%	6%	4%	10%	1%	3%	
	Real Estate Investment Trusts	351020	26	66	10	2	6	0	1	0	20	na	14	21	104	na	12	282
			23%	17%	28%	6%	28%	31%	24%	7%	5%	< 1%	2%	1%	27%	< 1%	3%	
Technology		10	46	8	2	2	0	1	1	0	1	1	99	0	0	na	2	164
			30%	22%	26%	24%	27%	35%	30%	10%	16%	5%	15%	13%	4%	< 1%	6%	
Telecomms	Telecommunications Equipment	151010	72	4	2	7	0	1	2	2	5	na	370	0	1	na	5	470
			26%	17%	17%	22%	19%	24%	24%	6%	15%	< 1%	23%	13%	3%	< 1%	2%	
	Telecommunications Service Providers	151020	36	20	5	1	0	0	1	1	1	na	11	0	7	1	3	87
			39%	31%	38%	31%	35%	45%	37%	14%	17%	< 1%	32%	23%	16%	9%	8%	
Utilities		65	36	39	324	2	1	0	0	0	3	7	733	1	1	na	33	1,178
			29%	19%	38%	20%	25%	38%	29%	6%	9%	3%	25%	2%	3%	< 1%	7%	

Material Subsector exceptions* Non-material

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