Insights 01

Listed Company Emissions

INSIGHTS — FIRM ESG

Felix Preiser
Associate

John Ward
Director

12 min read time | 11 Oct 21

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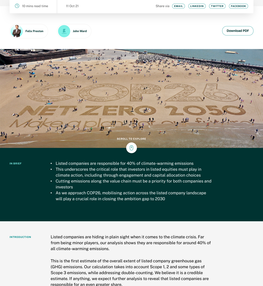

INFRA-STRUCTURE

IN BRIEF

- Listed companies are responsible for 40% of global GHG emissions
- This underscores the critical role that investors in listed equities must play in climate crisis mitigation through engagement and capital allocation choices
- Cutting emissions along the value chain must be a priority for both companies and investors
- As we approach COP26, mobilizing action across the listed company landscape will play a crucial role in closing the ambition gap to 1.5°C

INTRODUCTION

Listed companies are holding in plain sight when it comes to the climate crisis. Far from being virtue players, our analysis shows they are responsible for around 40% of all climate-warming emissions.

This is the first analysis of the overall extent of listed company greenhouse gas (GHG) emissions. Our calculation takes into account Scope 1,2 and some types of Scope 3 emissions, while addressing double counting. We believe it is a credible estimate. If anything, we expect further analysis to reveal that listed companies are responsible for an even greater share.

We have included a brief explainer on scopes later in this piece. In summary, 'Scope 1' covers direct emissions by a company – for instance, using fuels to heat a building or in an industrial process. 'Scope 2' is mostly purchases of electricity. 'Scope 3' covers all other indirect emissions such as the energy used by a supplier, the use of equipment by customers or the transportation of goods by a third party.

The results highlight the critical role of investors in listed equities in climate action, through both capital allocation decisions and their ability to influence companies via engagement. Listed companies provide important entry points for accountability that are not available where companies are privately owned or under state ownership. The small number of investment managers appearing regularly in the top 10 shareholders of listed companies have an immediate responsibility to act.

Given their outsized resources and focus on developed markets, listed companies will need to lead the way in cutting emissions. Our analysis suggests they (and the world) are tracking to halve emissions by 2030. The ambition for public companies as a whole should be net zero by 2040 at the latest, driven first and foremost by decarbonization.[1] The good news is listed companies have the capacity to be early movers. They are well-resourced and effective at managing change in short periods of time.

As we approach the crucial COP26 climate summit, our findings should give further impetus to investor and company action on climate change. They are also of relevance to regulators, many of which are currently developing finance sector frameworks to align with national net zero commitments.

We begin by setting out these key findings. We then set out the methodology and some of the key assumptions. We conclude by highlighting the implications for COP26 and beyond.

KEY FINDINGS

1. Listed companies are responsible for 40% of global GHG emissions

Our estimate ranges from 22.5 to 23.5 Gigatonnes per year. At the higher bound, this represents over 40% (40.2%) of global GHG emissions or 51.4 GtCO2e.[2] At the lower bound, it is 38.3%.

For Scope 1, we use CDP data and remove non-listed companies.[3] Our analysis then builds on this to incorporate additional Scope 2 and some Scope 3 emissions. We display the distribution of the emissions by major category in the chart below. The chart shows our higher bound estimates (see Appendix 2 for details).

Figure 1: Listed Company GHG emissions

The chart shows that Scope 2 and 3 emissions that are 'incremental' to the estimate of listed company Scope 1 emissions. These are the Scope 2 and Scope 3 emissions that we believe can be attributed to listed companies without the risk of double counting. For instance, it should not be taken to mean that listed companies play a minor role in coal-related emissions. For listed electricity producers, these would fall under Scope 1.[4]

2. Value chains play a key role.

We have assessed GHG emissions in listed company value chains. This leads to an estimate that is almost double our Scope 1 only calculation, based on CDP data. Similarly, it is double the Scope 1 only calculation published recently by MSCI.[5] Other published estimates, based on Scope 1, also lie in the range 15-20%.[6]

This confirms that cutting GHG along the value chain must be a priority for companies and investors seeking to address the climate crisis. Scope 3 emissions are typically 5.5 times larger than a company's direct operations.[7]

Two critical areas are highlighted in the chart above. The first is oil. We include oil produced by listed global oil majors that is consumed by non-listed entities, such as households and small and medium-sized enterprises (SMEs). We also add the oil consumed in vehicles manufactured by listed companies, so long as it is produced by non-listed companies.

The second is emissions from food production and changes in land use (blue, for instance, to the conversion of forests for agricultural use).[8]. These are largely absent from Scope 1 estimates, because most food is produced by smallholder farmers (about one third of the total[9]), by larger independent farmers and cooperatives, or by privately owned companies.

The methodology for each of these cases is discussed in the next section.

3. Public ownership comes with opportunities to engage

The corporate governance structures of listed companies provide important opportunities for accountability, whether to governments, investors or via media scrutiny.

Private companies retain significant control over their governance arrangements and are allowed to publish relatively few details about their business, including on critical sustainability issues. There are limited options available for external stakeholders to influence their climate transition strategies.

In contrast, public ownership comes with stronger rules around the disclosure of information and mechanisms for shareholders to vote for and against management decisions. Every day, investors trade trillions of dollars in listed companies, either directly or indirectly via, for instance, stock exchange ratios.

What gets counted here really matters. For instance, Carbon Tracker recently found that many major emitters are failing to account for their substantial risks in their financial statements.[10]. In addition, the vast majority of climate commitments – such as 'net zero' emissions goals and 'Science-Based Targets' – are made by listed companies. It is crucial that these commitments are rigorously assessed and tracked.

Listed companies are not immune to wider investment portfolios with net zero emissions goals. Many of the largest asset managers in the world have committed to a number of very poor quality 'Scopes' exclusions that critics ultimately require much better and more consistent disclosure. Tools which can assess and verify emissions independent of corporate GHG disclosures, such as the newly launched Climate TRACE, will also play a critical role.[11] But we can't afford to wait for perfect data before cutting emissions.

As our results confirm, investors in public equities have a clear and urgent responsibility to act on climate change. Given the scale of the challenge and Generation, we hope in particular, but we will escalate our responses when companies fail to act – up to and including voting against management and, when needed, moving our capital elsewhere. Our fiduciary responsibility to our clients includes investing in companies that are helping to solve the climate crisis, not making it worse.

4. Investors should attack the problem from all sides

Investor action on climate change is founded on the highest emitting and systemically important companies, in particular through the Climate Action 100+ initiative. Generation is a strong supporter of this initiative, and its importance is underscored by our analysis.

At the same time, our analysis also suggests the collective importance of the investment decisions by shareholders to vote for and against management decisions. Every day, investors trade trillions of dollars in listed companies, either directly or indirectly via, for instance, stock exchange ratios.

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OUR APPROACH

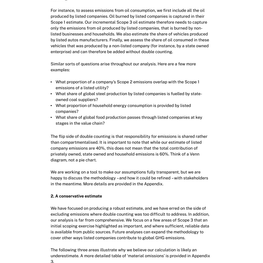
We combine several top down and bottom-up calculations to give a clearer picture of listed company GHG emissions for the first time.

The multiple datasets used in the assessment are listed in Appendix 1, with links to sources. Among the most important are S&P Trucost's reported and modelled dataset (2020 version) and sectoral data from the International Energy Agency and EDGAR (2020).

What's new about our analysis of listed company GHG emissions is that it looks beyond the company boundary. The authoritative standard for emissions accounting is the 'GHG Protocol' has three scopes.

- 'Scope 1' are emissions that a company emits directly. For instance, this includes the burning of fossil fuels in company offices, or the vehicles that it directly owns or controls. It also includes emissions from coal and gas power plants.
- 'Scope 2' covers purchases of electricity, steam, heat, and cooling, i.e. emissions treated as Scope 1 for a power plant are seen as Scope 2 by a company consuming the electricity.

'Scope 3' then covers all other emissions a company may be accountable for. These can be 'upstream' –relating to emissions from their suppliers, or their supplier's suppliers. They can be 'downstream' –relating to the use of equipment by customers, for instance. Transport of goods also often appears in Scope 3. In total, there are fifteen categories of Scope 3 emissions, as you can see in the graphic below.



Source: GHG protocol

Our estimates include other greenhouse gases along with carbon dioxide (CO2) - you can see those listed at the top of the image above. For instance, human sources of the potent greenhouse gas methane (CH4) are focused on agriculture, waste disposal and energy production. Methane is 84 times more potent than carbon dioxide over the GHG figure that includes a range of GHG along with 5-10 GtCO2e in recent changes.[12]

As noted above, it is crucial to have a value chain perspective when considering opportunities for climate action. For instance, food systems account for one third of greenhouse gas emissions globally, while transport emissions account for one fifth. Listed companies play important roles in these sectors: processing and selling the food people eat, and making the vehicles we drive. Much of this is missed when focusing narrowly on Scope 1.

Let's take one company example. Amazon's Scope 1 emissions are just under 10 MtCO2e. It's Scope 2 emissions are just above 3 MtCO2e. Meanwhile, it's reported Scope 3 emissions are 60 MtCO2e. This covers the footprint of own brand products but excludes other products sold by Amazon, to a more comprehensive Scope 3 figure would be much higher.[13] It is not uncommon for Scope 3 to make up~ 90% of a company's GHG footprint.

The following sections explain our methodology and some of the important assumptions made. We also highlight areas where further research could build on our initial estimates.

1. Addressing double counting

Historically, double counting has made it difficult to 'add up' the GHG emissions of listed companies. Along a single supply chain, several organizations can be held accountable for the same tonne of GHG. In the case of a vehicle, this chain of accountability includes oil companies producing the fuel, the automobile manufacturer, and the individual or organization that owns the vehicle. We aim to capture the share of emissions that listed companies are responsible for, while avoiding double counting.

For instance, to assess emissions from oil consumption, we first include all the oil produced by listed companies. Oil burned by listed companies is captured in their Scope 1 emissions. We then add the emissions from oil produced by listed companies but sold to entities other than listed companies, that is burned by non-listed businesses and households. We also estimate the share of vehicles produced by listed auto manufacturers. Finally, we assess the share of oil consumed in these vehicles that was produced by a non-listed company (for instance, by a state-owned enterprise) and can therefore be added without double counting.

Similar sorts of questions arise throughout our analysis. Here are a few more examples:

- What proportion of a company's Scope 2 emissions overlap with the Scope 1 emissions of a listed utility?
- What share of global steel production by listed companies is fuelled by state-owned coal suppliers?
- What proportion of household energy consumption is provided by listed companies?
- What share of global food production passes through listed companies at key stages in the value chain?

The flip side of double counting is that responsibility for emissions is shared rather than compartmentalized. It is important to note that while our estimates of listed company emissions are 40%, this does not mean that the total contribution of privately owned, state-owned and household emissions is 60%. Think of a Venn diagram, not a pie chart.

We are working on a tool to make our assumptions fully transparent, but we are happy to discuss the methodology – and how it could be refined – with stakeholders in the meantime. More details are provided in the Appendix.

2. A conservative estimate

We have focused on producing a robust estimate, and we have erred on the side of excluding emissions where double counting was too difficult to address. In addition, our analysis is far from comprehensive. We focus on a few areas of Scope 3 that an initial scoping exercise highlighted as important, and where sufficient, reliable data was available. We hope that our work will encourage a more comprehensive approach over other sectors listed companies contribute to global GHG emissions.

The following three areas illustrate why we believe our calculation is likely an underestimate. A more detailed table of 'material emissions' is provided in Appendix 3.

End use. Apart from vehicles, we have not included the end use of carbon intensive products (such as air conditioning systems). The difficulty here is establishing what is already included in our estimate, by for instance, listed electricity producers (as Scope 1) and by those renting space in commercial buildings (as Scope 2).

Food and land systems. Assumptions made here can make a big difference to the estimate, due to the overall contribution of food and land systems on GHG emissions. Our work to date has focused on the conversion of forests to agricultural use, which arises under NZAM land use change resulting from agriculture, using the EDGAR database. This includes calculations of deforestation.

We estimate the proportion of food sold by listed supermarkets using data on grocery outlets from a range of sources. We also estimate the share of physical goods handled by commodities traders, which plays a vital role in global food supplies. Two key GHG sources, N2O and methane emissions from cattle, are largely state-owned. Our approach here is conservative because it only includes foodstuffs that are exported.

We have not estimated food-related emissions in the supply chain of fast moving consumer goods companies. This is due to double counting and data availability issues. We chose not to include the share of food transported in some large fleets, for example those belonging to supermarkets, due to data availability issues. Some of these emissions are already captured by our Scope 3 analysis and, in any case, this felt like a bridge too far. We also excluded energy-related emissions from our food calculations to avoid double counting.

To get a sense of how our results compare to estimates of scope 3 GHG at the company level, we compared them with CDP's dataset for Scope 3. Our Scope 3 category, 'Purchased goods and services', then is around 1.5GtCO2e for companies in the food and clothing sectors. Only part of this will relate to land use change, and some non-food activity will be included. This compares with our Scope 3 estimate for food of 2.1 GtCO2e. This suggests that scope 3 reporting of corporate emissions is capturing only part of the story.

Financed and insurance emissions. The financing and insuring of high-carbon activities by listed finance sector organizations is a significant emission from our activities, due to the lack of high quality data.

According to the NGO Rainforest Action Network, the 60 largest private sector banks provided $3.8 trillion of finance to fossil fuels in the past five years.[14] The vast majority of this finance is provided to state-owned companies and privately owned entities that are excluded from our calculation (for instance, financing of crop production and power plants owned by non-listed firms). Similarly, listed insurance companies often provide coverage for high carbon infrastructure.

3. The Aramco question

Where to draw the line on company listings has no standard definition we are aware of so we want to be transparent about our decisions here.

We decided to include both Saudi Aramco and Gazprom. They are both listed and, in keeping with our findings, investors in these companies therefore have a responsibility and opportunity to engage. Of course, the Saudi and Russian governments remain significant control over their corporate strategies, so others might have chosen to include these companies from the outset.

It makes little difference to the overall findings. Treating both Aramco and Gazprom as state-owned reduces our overall estimate only by about 1.8% of global GHG. The lower estimate of oil production by listed companies is partly offset by an increase in oil consumption in vehicles produced by listed companies.

We also include the listed company subsidiaries of state owned oil and gas producers and power companies, which mainly arise in our analysis in the context of China.

CONCLUSION

As we approach COP26, let's be clear that mobilising action across the listed company landscape will play a crucial role in closing the ambition gap on emissions reductions to 2030.

If listed companies account for 40% of the climate crisis, the potential for impact through asset management in listed equities must be huge. The true figure – and potential for impact – is likely to be even greater.

Listed companies will need to reach net zero by 2040. Action in the near term creates significant value,[17] and many listed companies have the capacity to be early movers. They are very well-resourced and effective at managing change in short periods of time. Investors in listed equities and other stakeholders can accelerate progress through active engagement and capital allocation choices.

Listed companies will play a key role in a sustainable and equitable transition to net zero. It's time for investors to prove it.

Appendix 1 - data sources and assumptions

Appendix 2 - estimated GHG of listed companies

Appendix 3 - material omissions

Endnotes

IMPORTANT INFORMATION

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