August 20, 2021

A LITTLE LESS CONVERSATION, A LITTLE MORE ACTION:

10 lessons learned from 10 years of helping investors to tackle climate

FOCUS/THEMES	INDUSTRIES/COMPANIES	COUNTRY/REGION
Climate Change	All	Global

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BACKGROUND

In 2010, ISS ESG's Managing Director Max Horster started one of the first companies to measure the impact of climate change on investments. From investment carbon footprinting to climate scenario analysis, from climate-linked proxy voting to climate neutral investments via offsets: over the years, the team pioneered a wide range of today's leading methodologies and approaches across all asset classes.

In 2017, Max and his team joined ISS ESG to form the first climate specialist unit of a global ESG service provider. Today, the ISS ESG's Climate team covers over 25,000 issuers on up to 600 individual climate-linked data points, and have screened over $4 trillion of AUM on their climate risks and impact.

On the occasion of its 10th anniversary, the ISS ESG Climate Team shares 10 lessons from 10 years of helping investors to tackle climate change.

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INTRODUCTION

"The financial industry is a key catalyst for the real economy to combat climate change." This was our conviction in 2010 when we started one of the first companies enabling investors to measure the climate risk and outcomes of their investments. Aside from a few converted financial market participants, not many shared this view.

10 years later, this idea seems to have become reality. The world has embraced President Obama's famous statement that "We are the first generation to feel the effect of climate change and the last generation who can do something about it". There is hardly any regulator and investor left on this globe who is not thinking about climate change, its implications, and the role of financial markets in this effort.

Over the last 10 years countries around the world have came to - and stand by - a global climate agreement. Civil society has embraced the topic, and the next generation is marching for it under the Fridays for Future banner. Countries and companies alike have committed to become Net Zero by changing economies, businesses and ways of life. In this mix, there is no shortage of investor initiatives and regulation addressing the topic.

Our small start-up from 2010 is no longer working with mission-focused investors alone. Investor action on climate topics is now a mainstream topic, and we have become part of one of the leading global ESG providers ISS ESG, where our nearly 500-strong team is at the service of the over 2000 ISS clients globally. These investors use a broad range of sustainability factors, including the hundreds of thousand of climate-linked datapoints measured by the climate team, to reposition their investments and to act upon climate change through our engagement and voting solutions.

Now, in the 10th year of our work, it is comforting to see that our niche conviction from 2010 is shared by so many: the financial industry IS a key catalyst for the real economy to combat climate change. So, is it time for complacency? On the contrary. While the momentum to address climate change via financial markets is more powerful than ever, it is also time to critically question if the world has found the appropriate means and action to achieve the intended outcome.

Leaning on the experience of 10 years of helping investors to tackle climate change, the ISS ESG Climate team identified 10 lessons that identify catalysts, key concepts, important crossroads, and pitfalls of the current responsible investment industry's approach. We published these 10 lessons over the course of our 10th year of helping investors to tackle climate change.

There are currently three main challenges that require careful and prudent, yet immediate attention: the regulatory beast; methodological mayhem; and investor climate action.

Regulation: A Force for Good or Ill?

- The regulatory beast has been unleashed – will its impact be grandiose, or will it deflate without effect?

By and large, companies participating in the real economy have accepted the reality of emerging climate change risks, and it is quite uplifting to see an increasing number of robust and Net Zero-aligned climate action statements. At the same time, it is concerning to note that the corporate leaders adopting more ambitious climate strategies are largely the same companies that were leaders in reporting five years ago. The overall picture is that yesterday's climate leaders are getting increasingly sophisticated, while yesterday's climate laggards are still laggards and don't seem to move – let alone transition - anywhere. The takeaway is clear: the time for voluntary industry commitments has passed. 10 years of research in this space highlights that it is now up to climate regulation to foster change in the real economy (Lesson 1).

While regulation is key to creating transparency on company climate action, it should still be applied judiciously, so as to avoid missteps. One area where this is relevant is the regulation of investors, where there is an enormous mismatch between regulatory expectations and the finance industry's practical challenges (Lesson 7). If this does not get understood and solved quickly, a lot of political energy will have been wasted on the wrong battlefield. Another potential regulatory pitfall arises when it comes to regulating how ESG data and service providers should construct their ratings. Given that this field is still in its infancy, regulators should focus on creating a level playing field to enable competition between the best ideas – standardization risks killing much- needed innovation (Lesson 5).

The challenge is obvious. Climate Change needs regulation and it needs it fast. The regulatory will is flexing powerful muscles, but the current approaches risk yielding either little or even adverse outcomes, rather than achieving the intended impact.

Methodology: Magic or Mayhem?

- A never-ending story of confusion - but no excuse for inaction…

The perfect can be the enemy of the good. And methodology discussion is the enemy of investor climate action. With the knowledge that just 100 companies globally are responsible for over 70% of global emissions, the past 10 years of methodology discussion around how to best measure the outcomes of investment action on climate seems time not well spent. There are some major methodology-related pitfalls, however, and they are not trivial.

While daring to simplify might be a virtue given the current state of the methodology debates, the outcome should not be simplistic. Approaches that look at sectors without a granular understanding of the companies within the sector has led to 'fossil free portfolio' claims that were simply false.

Sometimes, the soft drink producer in your portfolio might sit on fossil reserves without you knowing it (Lesson 2).

While 'fossil free' approaches look at the supply side of the climate challenge, it is a carbon footprint that measures the demand side: fossil fuels combusted and resultant greenhouse gas emissions. Consequently, most investors start their climate analysis with an investment carbon footprint. Guilty of co-inventing the logic of portfolio carbon footprinting in 2010, we think a carbon footprint's role is evaluating the decarbonization strategy's success, rather than being a strategy itself (Lesson 3).

The latest and greatest methodological approach and challenge is the Net Zero label. This is an example of a well-intended pledge where the methodological backing is lagging. After all, Net Zero is not the same old wine in new bottles. It does not simply mean reducing and potentially offsetting greenhouse gas emissions - it also requires carbon removal from the atmosphere at large scale. Investor Net Zero pledges are not yet embracing that part of the equation adequately (Lesson 8).

With competing climate impact and risk measurement methodologies out there, many investors remain puzzled and start measuring using whatever tool or methodology is within reach. A lot of measurement is therefore conducted without a clear understanding of what is being measured; why that measurement makes sense in the given context; and how an investor can act upon the output. A prudent approach should choose the opposite sequence: know what you would like to find out; survey the market for the best approach; and apply it (Lesson 4).

From Reporting to Acting: Production, Process & Products

The past 10 years have made the investment industry quite climate transparent. If good climate reporting was the aim, we are almost done with our homework. There are over 60 investor-focussed climate reporting regimes, new ones are popping up almost monthly, and our automated reports cater to almost all of them. Reporting, however, is only a means to an end.

The end must be to change investment practices and here, the investor world is scarily behind. Case in point: despite all the remarkable reporting efforts going on, less than 3% of all ETFs globally follow an ESG logic.[1] Sure, this number was below 1% before 2018, so there is *some* growth. But in light of the magnitude of the climate challenge, this feels like too little, too late for 2021.

A lack of data is often cited as the main reason for investor inaction – this is quite a claim! In times of ESG data overload and machine learning, the emergence of Artificial Intelligence (AI) is potentially accelerating the explosion of information availability – but this comes with increased noise in the results. While there is room for AI in the upstream ESG data collection process, the world is a long way from being able to rely on AI for ESG

[1] Source: ISS ESG calculation based on ETFGI: https://etfgi.com/news/press-releases/2021/03/etfgi-reports-assets-invested-etfs-and-etps-listed-around-world-reach

ratings themselves – it is essential that humans remain a key part of the analysis process (Lesson 6).

Depending on the asset class, tilting investment strategies might not yield much real world impact anyway. For listed equities, for example, it is not divesting but engaging that may deliver the strongest outcomes in terms of transforming the real economy. Voting on climate resolutions at company Annual General Meetings (AGMs) is becoming a natural extension of unsatisfactory engagement outcomes, and investor groups such as Climate Action 100+ and the Net Zero initiatives are gearing up to make increased use of the climate vote (Lesson 9).

When it comes to real world impact, the financial markets are slowly embracing the notion that debt financing might offer stronger climate-related leverage than equity investing. If access to capital comes with ESG strings attached, this can be a lever to ensure company climate transformation in exchange for less costly capital. The offspring of the Green Bond world – green lending and sustainability linked bonds – have the potential to become this much-needed catalyst for transformation (Lesson 10).

Outlook

Let's travel forward in time to 2030, as the coming 10 years will be critical and we are running out of time. What will we see when looking back to the early 2020s? Will this moment have really been the tipping point for investors to tackle climate change? It is certainly a moment of great climate momentum, goodwill and spirit. Is the momentum enough, will the goodwill be backed by consequence, and will the spirit yield to tangible change?

Prudent regulation, smart methodologies, and investor action - these are the three areas that will decide if the financial world will get its act together and deliver a decade that will see the needed change and transition by countries, companies and people. Only then will our mantra from 2010 become reality - that the financial industry is a key catalyst for the real economy to combat climate change.

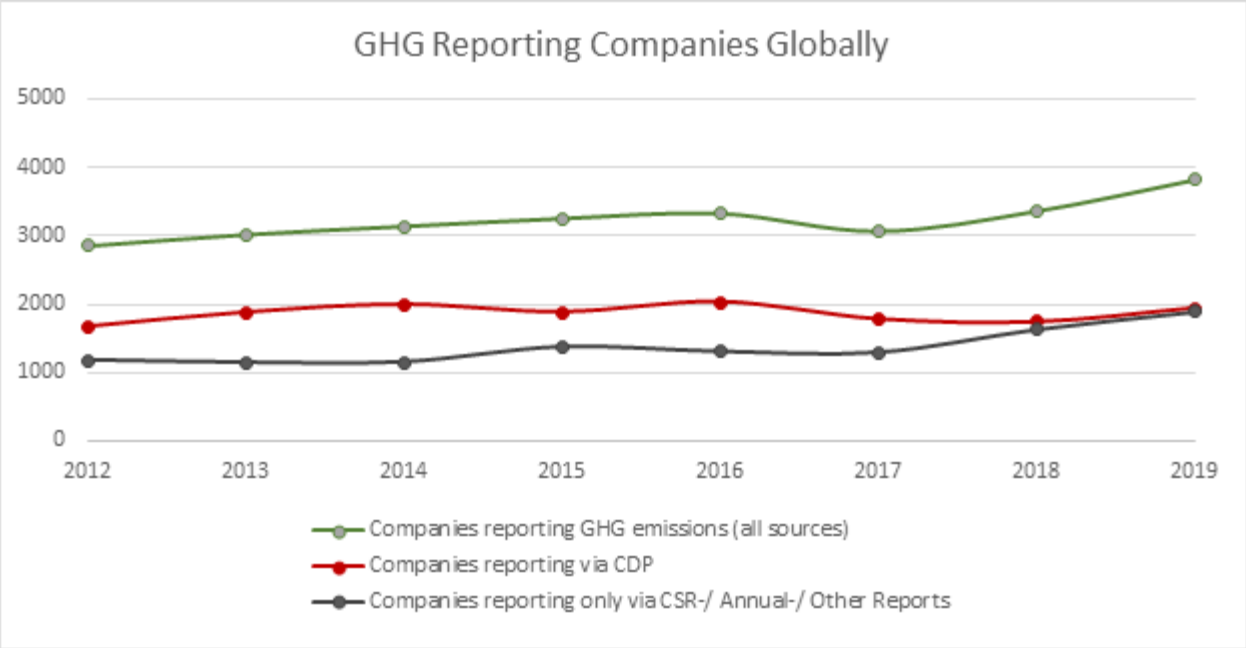
A little less conversation, a little more action, please
All this aggravation ain't satisfactioning me
A little more bite and a little less bark
A little less fight and a little more spark

(Elvis Presley, 1970)

LESSON 1: IT'S THE REGULATOR, STUPID

Voluntary climate disclosure of companies only gets you so far. It is the regulator that will enable the transparency that investors need.

The term "Carbon Bubble" typically describes the potential economic bubble based on an underestimation of climate risks unfolding in the economy. There is, however, another Carbon Bubble: It is the bubble that climate change and ESG experts sometimes find themselves in when they talk about transparency and climate disclosure day in and day out. In this bubble, the excitement around the Task Force on Climate-related Financial Disclosures (TCFD) and other reporting regimes seems to imply that the economy has reached a point where climate non-transparent companies are in a minority. The numbers, however, tell a different story.



Still below 4,000: All publicly listed companies globally that report greenhouse gas (GHG) emissions for the reporting years 2012-2019. Source: ISS-ESG.

The number of companies reporting their greenhouse gas emissions, i.e. the very first step of a climate strategy, is still at less than 4,000 globally. To set this in context, for the universe of over 25,000 issuers that ISS covers for their greenhouse gas emissions, less than 15 percent report their emissions, which typically means that they don't have a climate strategy.

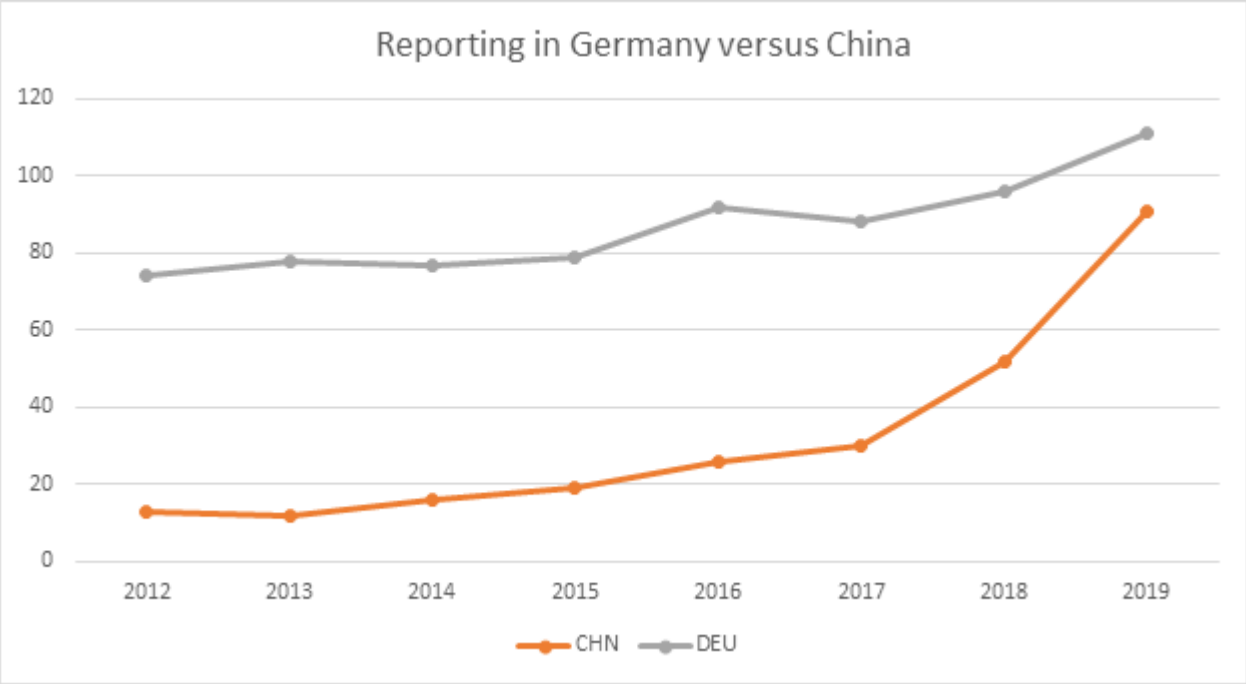
What's more, the number of companies reporting their emissions has not substantially increased over the past years. In comparison to the 3,850 companies reporting today, there were always around 3,000 companies reporting between 2012 and 2017. While there is progress in climate transparency, it is much slower than the noise in the Carbon Bubble over the years would imply. Only in the last two years, we can observe a slight increase of about 400 additionally reporting companies globally per year – not a massive increase in face of the colossal challenge that climate change poses.

The initial self-reporting of greenhouse gas data was catalyzed by the CDP, an NGO that some 20 years ago managed to create a "coalition of the willing" of companies that pioneered greenhouse

gas and wider climate reporting. Within the last 10 years, however, the number of reporting companies started to plateau. Also, an increasing number of companies stopped reporting through the CDP or decided to report outside the CDP structure. The first wave of consistent voluntary reporting had reached its limit.

Today, there are roughly as many companies reporting through the CDP as those who opt to report outside the CDP. In fact, the increase in greenhouse gas reporting companies overall for the reporting years 2018 and 2019 comes exclusively from those reporting outside the voluntary structure of the CDP – which might be a first indicator that this is driven by more mandatory regimes.

Around 2017, the first effect of regulators stepping up to force wider climate transparency could be felt. Not only in Europe: suddenly, one could observe a surge in reporting in geographies such as China, Hong Kong and South Korea – where regulators and stock exchanges announced to make reporting mandatory.



Constant slow growth in Germany, a spike in China for 2018 and 2019: greenhouse gas reporting of listed companies in the reporting years 2012-2019. Source: ISS ESG.

The lesson learned here is twofold. Climate noise often gets confused with climate action. We are by no means at transparency levels that the momentum of the public debate would imply.

Secondly, voluntary reporting is a great start, but only gets the transparency level so far. Frameworks such as the TCFD can help to structure the thinking about climate disclosure. However, only the regulator seems to be able to really achieve a transparency level wide and deep enough for companies to sincerely embrace the topic and for investors to act.

LESSON 2: WHAT IS ESSENTIAL IS OFTEN INVISIBLE TO THE EYE

Going fossil free is more complex than most investors think.

Let's start with a little quiz: Say you are building a concentrated portfolio of car manufacturer Toyota, trading house Mitsubishi, beverage firm Coca-Cola Amatil and financial firm Berkshire Hathaway: Which of those four firms owns Oil, Coal or Gas reserves?

Around 2010, the divestment movement in US university endowments helped put climate change on investors' agendas. The call to no longer invest in climate-harming oil, coal and gas found tremendous support worldwide and by 2020, around 2,000 institutions and 60,000 individuals, representing $14 trillion assets worldwide, have begun or committed to divest from fossil fuels.

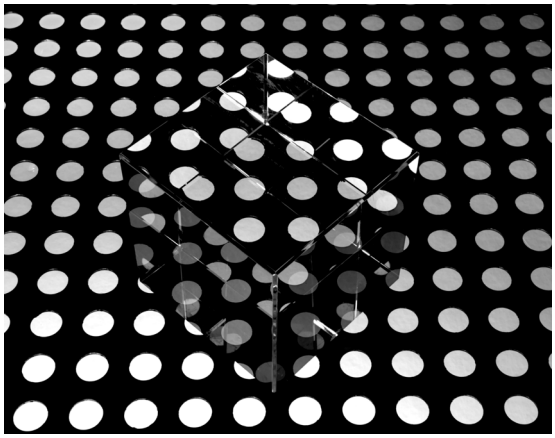
On the surface, going fossil free seems to be straight forward: Just exclude all energy and extractive companies from your portfolio and you are done.

Well, it is not that easy. The responsible investing industry can tell many stories of investors who first proudly claimed fossil free portfolios by avoiding relevant sectors, and then had to wake up to uncomfortable headlines about unwanted oil, coal or gas skeletons in the closet.

The reason is that there are many companies that own oil, coal and gas reserves without being categorized as Energy, Materials or Utility companies.

Fossil Reserve Owning Companies in Non-Obvious Sectors, Anybody?

Which of the four companies in the introductory paragraph own fossil reserves? You might have guessed it: All four of them. As a matter of fact, ISS ESG collects data on over 100 companies that fall into the category of "unexpected fossil reserve owners." These unexpected fossil reserve owners can be divided into three major groups:



1. **Conglomerates with diversified businesses.** This includes for example many Japanese companies that have diversified into fossil fuel extraction/reserves to secure raw materials for their industrial businesses, such as Mitsubishi Corp., ITOCHU Corp., Mitsui & Co. Ltd., Marubeni Corp., Sojitz Corp. and Sumitomo Corp.
2. **Holding companies involved through subsidiaries/associates.** This includes for example some Indonesian companies, such as Jardine Matheson Holdings Ltd., PT Astra International Tbk and PT United Tractors Tbk (operating subsidiary that owns coal reserves).
3. **Outliers.** This includes companies whose ties to fossil fuels are completely unrelated to its other business operations, such as Coca-Cola Amatil, Toyota Motor and Berkshire Hathaway.

Fossil Reserve Owning Companies in Non-Obvious Sectors:

FOSSIL RESERVE OWNING COMPANIES IN NON-OBVIOUS SECTORS	
Automobiles	2
Beverages	1
Capital Markets	3
Chemicals	13
Construction & Engineering	4
Construction Materials	7
Distributors	2
Diversified Financial Services	4
Electrical Equipment	1
Energy Equipment & Services	4
Food & Staples Retailing	1
Gas Utilities	10
Hotels, Restaurants & Leisure	2
Independent Power & Renewable Electricity Producers	25
Industrial Conglomerates	19
Insuranc	1
IT Services	1
Machinery	1
Marine	2
Media	1
Multi-Utilities	5
Real Estate Management & Development	5
Trading Companies & Distributors	19
Transportation Infrastructure	1
Water Utilities	1

Table: Number of companies by GICS sector in the ISS ESG universe that own fossil reserves, but don't belong to the obvious reserve-owning GICS sectors.

The Catch of Thresholds

But it gets more complex when the investor dives deeper. Take, for instance, a portfolio with limited fossil investments and the relatively common threshold of investing only in companies with less than 30 percent revenue from oil, coal and gas. While the intention might be to avoid exposure to climate harming business practices, the outcome might be the opposite: Such a threshold-governed portfolio might result in holding the single largest coal producers worldwide.

How so? Well, take Glencore PLC and Anglo American PLC for example: These firms report only five percent and 19 percent coal mining revenues, respectively, so they would both make the cut under a 30 percent threshold, as the remaining revenues come from other business activities.

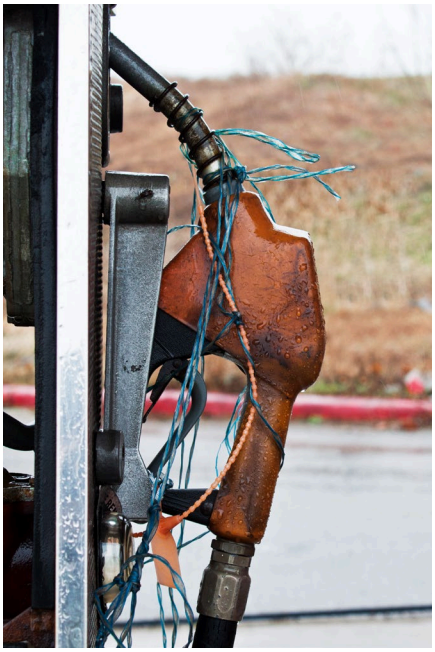
Glencore is however, one of the world's largest coal producers with its annual coal production accounting for nearly two percent of global coal production! It also ranks #10 in ISS ESG's top coal reserves owners list. Anglo American accounts for nearly one percent of global coal production.

But there are even less obvious cases. BASF SE is another holding that could end up in a portfolio with intended reduced fossil exposure as the oil and gas reserves of the firm are not easily recognizable As of May 2019, the chemical giant moved its oil and gas business into the Wintershall Dea joint venture and no longer consolidates its fossil revenues into its overall revenue disclosure – and its share of Wintershall Dea's income is often overlooked under a revenue-based approach. Despite BASF's 72.7 percent ownership of that business with oil and gas operations across Europe, North Africa, Russia, South America and the Middle East, the firm manages to appear fossil light at first glance thanks to legal – but somewhat misleading – oil and gas revenue accounting practices.

Because of cases like these, ISS ESG recommends that client ESG practices combine revenue thresholds with other means of identifying fossil fuel companies, such as global production thresholds or deeper dives.

The Helping Hands in Fossil Extraction

Still not complex enough? Well, a dedicated "fossil free" investor might want to not only avoid reserve owning companies, but also companies that are indispensable to the extraction and processing of fossil reserves. Especially unconventional extraction – hydraulic fracturing ("fracking") might be in focus, for instance, and it is often not the most obvious companies that drive these practices.



Take firms like Siemens AG, ABB Ltd, General Electric Company or Ingersoll Rand. With these industrial conglomerates in the portfolio, investors are, often unintentionally, exposed to highly specialized and customized products and services for unconventional fossil fuels. Critical components for fracking come, inter alia, from chemical holdings in a portfolio such as Dow Inc. and DuPont de Nemours, Inc. And through a financial firm like Brookfield Asset Management Inc., an unaware investor is exposed to the extraction of coal-bed methane, hydraulic fracturing, coiled tubing, wireline, pressure pumping and other complementary oilfield services.

What is essential is often invisible to the eye. However, the good news is that it is no longer impossible for investors to navigate this space. At ISS ESG, our automated Climate Impact Reports help detect all cases of exposure to fossil fuel ownership and involvement in controversial extracting practices. We can provide such information due to our dedicated Energy and Extractives team that works exclusively on creating transparency in this – often non-transparent – field to help investors going truly fossil free.

Now you can enjoy your can of Coke in your Toyota with the security of fully understanding the producers' role in the fossil fuel production cycle!

(Contributor: Xuan Li, Team Lead, Energy & Extractives Screening, ISS ESG)

LESSON 3. EVERYONE'S FRENEMY: CARBON FOOTPRINTING

Carbon footprinting is loved and hated by investors, but that is because it is often misunderstood. Once investors embrace when to run it and what to use it for, carbon footprinting is irreplaceable.

Lots has been said about investment carbon footprinting since we first expanded it in 2010 from a prototype to high-volume, automatic and scalable analysis. Carbon footprinting first found a market, and then even regulatory uptake, with the French Energy Transition Law in January 2016, which made carbon reporting mandatory for investors. From unreasonably high expectations to nonsensical bashing, carbon footprinting has seen it all. Most judgements have one aspect in common: What footprint analysis can or can't achieve was misunderstood or taken out of context.

Back in 2010, carbon footprinting was seen as the breakthrough metric to understand future investment climate risk. That was correct and incorrect at the same time.

Correct was that the metric was a breakthrough: CO2 equivalents per money invested or per investment revenues allowed investors for the first time to quantify the currency of climate change – tonnes of greenhouse gas emissions – for their portfolios in a language they understood. By using market or shadow pricing, they could even convert it into the investor's own language of monetary impact.

Incorrect, however, was the assumption that a carbon footprint would measure future climate risks. Greenhouse gas emissions are inherently backward-looking as they assign last year's emissions to a portfolio and provide a snapshot, rather than a view into the future.

This led to the other extreme of judgement: Because a carbon footprint is static, a common argument claims it to be worthless. Again, that is true and not true, depending on what it is an investor wants to achieve.

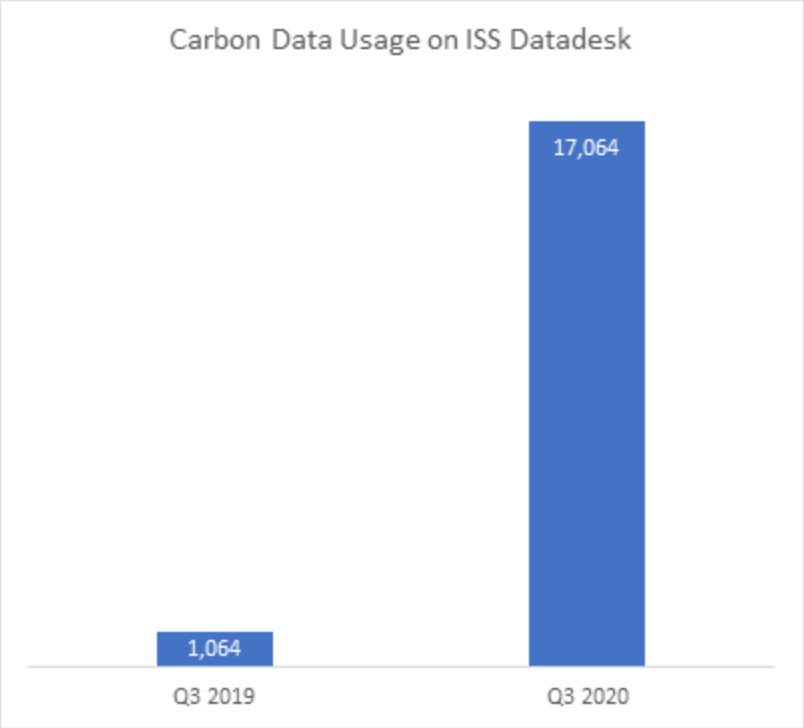
Indeed, a carbon footprint is not an appropriate metric to steer a portfolio, due to its snapshot nature. It is like measuring the fever of an ill person once and, based on that outcome, making a prediction on whether they will be healthy or ill in a week's time. A carbon footprint is, however, an excellent control mechanism on whether a portfolio is going in the right or wrong direction vis-à-vis climate change. Just like measuring a fever, it should be used to establish a baseline and, by checking it at regular intervals, it should allow for monitoring of a portfolio's emissions. Investment carbon footprinting is taking the temperature of a portfolio at any given point in time.

It is obvious that measuring fever does not bring it down. For that, investors should use forward-looking indicators that go beyond carbon footprinting. The ISS climate team started in 2010 with just three quantitative indicators: Scope 1,2 and 3 greenhouse gas emissions. Today, we have up to 800+ climate-linked indicators for our 25,000+ covered companies, many of them based on bottom-up research.

If a qualitative and forward-looking indicator such as climate targets, strategies or climate-linked management systems is available to the investor, it can be used to steer a portfolio toward a likelihood of less emissions in the future.

In our metaphor, that is equivalent to taking paracetamol in order to bring the fever down. The regular footprint is then the thermometer to check on progress. It provides a litmus test of the strategy's success, verifying that portfolio greenhouse gas emissions are, indeed, decreasing over time.

If done right, investment carbon footprinting should remain the starting point of any portfolio climate analysis to establish a baseline. Investors are embracing this practice more than ever: over the past twelve months, the carbon dataset on the ISS platform Datadesk was used about 17,000 times, 17 times more than in the year before.

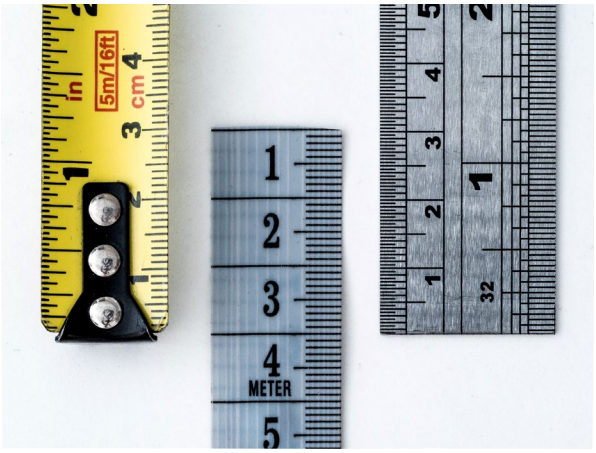


Source: ISS ESG: 365 days rolling usage of the ISS ESG climate data via the online portal Datadesk. May include multiple portfolio climate screens per session and usage of other climate and ESG data.

While an investment footprint should not be used to steer a portfolio, it can be used to demonstrate that a portfolio's emissions are being steered downward over time. Investment carbon footprinting is not the medicine against investment climate risk, it is the thermometer to regularly check that the medication is working.

LESSON 4: MEASURING MAYHEM – LOTS OF ANSWERS, BUT TO WHICH QUESTION EXACTLY?

In The Hitchhiker's Guide to the Galaxy by Douglas Adams, an enormous supercomputer named Deep Thought calculated the answer to the "Ultimate Question of Life, the Universe, and Everything." This super sophisticated machine comes to the conclusion that the answer is the number 42. Unfortunately, no one knows what the question is. Sometimes, this is the notion that investors have when running a climate analysis: Great output but what is the question I wanted an answer for?



In a world with no shortage of methodologies to measure portfolios' climate implications, investors often feel overwhelmed with where to start. Rather than initially deciding on the type of understanding they want to gain on their portfolio, the first reaction is to run just any analysis that happens to be within reach. This typically comes down to one of two options.

1.) Investors pick up their phone and ask what their incumbent ESG provider happens to have on offer. The challenge is that not many providers have a holistic suite of analytical tools to cater to different climate-linked questions, but rather just one type of solution. In other words, the investor ends up with an answer to the climate-focused question behind the provider's solution, rather than to the question that the investor might have had in the first place.

2.) Investors opt for a free analysis (such as the Paris Agreement Capital Transition Assessment, or PACTA) that is provided by the government, regulator or industry association – this, after all, means that no budget and no top-level approval is required for running the analysis. Such an approach can not only fall short of the quality of analysis that might result in C-suite level interest and allocated budget, it also raises the inevitable awkward question of what "free" means: it is typically paid by taxpayers' money and is rolled out at the expense of commercial providers who then lack the funds to invest in further product development and R&D.

But the real issue is that freely obtained analysis still doesn't solve for getting to the bottom of what really matters to investors. Or, as a group of institutional investors phrased it in 2018: "If Carbon Footprinting is the answer, then what is the question?"

So, what is the investment climate question? It's not that simple.

The question could be linked to a climate reporting regime: What should I report under the PCAF reporting initiative that originated in the Netherlands? How should I report climate risks in line with the TCFD? What are useful metrics for Net Zero targets and how do those differ from 2-degree scenarios? What does the EU taxonomy want to know? What unit, timeframe, currency, look-through date, denominator, etc., does the particular regime ask for? ISS ESG currently counts over 50 reporting regimes globally to which investors could or should adhere. Depending on the regime's reporting requirements, the analysis must adjust accordingly.

The question could also link to investment metrics that don't necessarily follow any standards or regimes. On the contrary, they might deliberately deviate from anything anybody else is using to establish that edge that makes their own investment product more competitive.

In other words, these questions about investment climate risk and impact can come in all forms and shapes and are likely to differ from one investor to another. Here are three simple steps that investors can follow to determine "their" analysis question and the respective answer:

1.) Analyze your climate-linked needs and requirements from internal and external stakeholders.

2.) Establish your specific climate objective – this will lead to the "question".

3.) Survey the market to determine how your question can be answered with current methods, and be aware that more methodology development will need to happen.

In an area fraught with terminology and specialist methodologies, there are several key fundamentals to keep in mind:

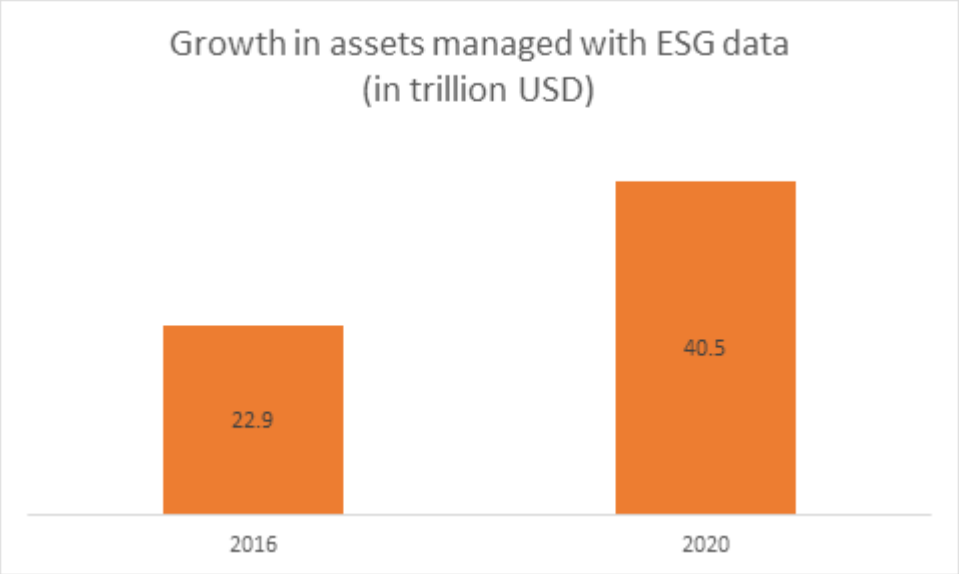
- An answer without knowing the question doesn't help.
- There isn't just one investment climate risk question, and nor should there be. Risk versus impact, reporting versus investing, disclosure versus performance: all these dimensions require their own sets and subsets of data and analysis.
- An answer without knowing what to do with it, how it changes your action, is not worth much either. An objective for the analysis ensures that question-answer-action are linked.

A prudent investor approach to climate change is therefore to first understand the climate implications and questions concerning their own investment strategy. Only then will the most appropriate analysis be chosen and applied. And only then will an answer like "42" start to make sense – and most importantly be acted upon.

LESSON 5: MARKET GROWING PAINS CAN LEAD TO LOSING GAINS

Did you know that ESG rating agencies are the biggest hindrance for sustainable investments? And that only regulation and making data freely available will enable investors to invest sustainably? Those beliefs are the essence of an absurd myth that is currently making the rounds in the market.

In Shakespeare's Henry V, the Boy famously quotes Plato: "the empty vessel makes the loudest sound." As responsible investment moves from niche to mainstream, a lot of new and loud voices at the table often show little understanding of the mechanics of successful sustainable investing. Funds leveraging ESG data have grown from USD 22.9 trillion in 2016 to over USD 40 trillion in 2020.



Graph based on: Opimas, ESG Data Integration by Asset Managers: Targeting Alpha, Fiduciary Duty & Portfolio Risk Analysis, June 2020.

This means not only more assets but also more attention. Suddenly, thousands of new voices have joined the discourse on sustainable investing, and not all of them seem fully up to speed. This can result in somewhat bizarre discussions.

The above-mentioned tale of ESG rating agencies hindering sustainable investing goes somewhat like this: a lot of investors want to invest sustainably, but they can't – because of data providers. How so, we might ask? To invest sustainably, the investor needs extra-financial data, and in most cases that analysis comes from data providers. Such data providers don't only provide raw data, but also rate companies. And in that process, they – unlike credit rating agencies – produce different results. This variation in results across providers is presented as an obstacle to adopting responsible investment practices.

When confronted with such arguments, investors who have worked with quality ESG data providers and rating houses over the years must wonder if critics really comprehend the process of ESG research. These misconceptions seem to stem from the growing pains of a market that is exploding in size. Let's dissect the story above via two key misconceptions.

Pain 1: ESG ratings should all come to the same conclusion

There is no shortage of studies that compare the ratings from different providers on the same company and observe that they are differing in their outcome (and that this is less often the case with credit ratings agencies). While the observation is correct, the conclusion typically is not. Namely, either that all the ratings must be wrong or that only one rater gets it right and the others don't.

This is like observing a highway, seeing a lot of different vehicles and concluding that they can't all be cars because they don't all look the same.

Ratings come in all forms and shapes: There are disclosure ratings, performance ratings, risk ratings, impact ratings and many more. All these ratings come about by rolling up hundreds of indicators with different weights into one number or letter. This allows for countless variations, depending on the emphasis of different topics, yielding different results. None is right or wrong, they just stand for different views of the world and prioritize different issues.

A fossil-heavy climate utility in the U.S. will have a different risk profile before and after a new Biden energy transition legislation and an ESG risk rating should reflect this. An ESG impact rating, however, might not change as the impact on the environment remains the same. Diversity in ESG ratings is not only good, it is essential if we are to accommodate all investors' needs.

What is more worrisome than the limited understanding of the nature of ESG ratings is that these voices are calling for regulation: Let's regulate ESG rating agencies to ensure that their rating results look the same. This is like calling for the regulator to decide what a car should look like. Everyone remembering cars from Eastern Europe before the fall of the iron curtain will know that this isn't a compelling idea.

Germany 1989: A car produced by West German free market competition (left) and by East German government requirements (right). (From: https://qph.fs.quoracdn.net/main-qimg-5a24559130bb38c3856069a2ae271460)

Instead, the regulator might want to ensure that ESG rating agencies adhere to certain standards and a code of conduct, and otherwise leave them to organize for a competition of ideas and products to best serve the market. Investors, on the other hand, should develop the expertise to choose in an educated manner between different ratings to find the one that best suits them – or even create an ESG house view based on individually chosen and weighted indicators.

Pain 2: ESG data should be free

This leads to another argument about ESG data that is currently floating around: ESG data should be free for investors. Only then will the key hurdle to using the data, cost, be removed. Consequently, the public hand, such as the Swiss government, as well as industry initiatives compete in sourcing free data for investors.

The issue is, of course, that the data is not really free. The taxpayer is paying for it. This leads to a potentially reputation-damaging situation for the finance industry: this margin-strong sector claims that climate change is an essential topic, yet but happily lets everyday people pay for the analysis!

Above all, such government support runs the risk of killing innovation among professional data providers. It is not only the regulator, though. Large investor groups build coalitions such as Climate Action 100+ to jointly use data for measuring or engagement. This is potentially quite powerful, but it often seems odd that, after strong statements on the importance of climate change, they ask for "in kind" and "pro bono" data, which typically means publicly funded solutions.

One of these "free data" ideas is to make sure that raw data is reported directly by companies to a public entity that investors can access for free.

The idea of companies reporting to a centralized agency is compelling. All data is in one place and can be used by investors right away without expensive data providers standing in between. It is, however, not a real need but merely a "nice to have." The information that could be found in such a data repository is already available today, albeit with one key difference: today it costs money, as ESG agencies go through the effort of data collection, comparison and standardization. Making it free means, again, offloading the cost to taxpayers.

What's more, such a centralized data repository will not make life easier for investors. The data will only be available for one jurisdiction (a country or region) in a harmonized manner and it will still be individual data points that need a judgement call to roll up into a rating that is actionable.

If the argument is that such a repository will make more companies report, it falls short. The regulator has many more means to get companies to a certain reporting transparency without being the data collector or aggregator.

The Aspirin: Truth does not belong to the one who shouts the loudest

The frequently repeated argument that ESG ratings should look alike or be free of charge are typical for the growing pains of an exploding market. All of a sudden, there are players at the table who feel the winds of change and need to react hastily, so they run the risk of leaping to false conclusions:

- Investors, who have no ESG expertise yet and apply concepts that aren't relevant (*why is my credit rating different than my ESG rating?*);

- Lobbyists, who see their role as defending the status quo by pulling up arguments for stagnation (*so long as ESG ratings cost money and don't rhyme, we have no choice but to keep investing as we always have*);
- Researchers, who are jumping on the ESG bandwagon and run studies with little subject matter expertise (*we compared different ratings and the results were different*);
- Regulators, who are being influenced by agents of the status quo or misled by spurious research (*we read a study and met with industry associations, now we want to regulate ESG rating outcomes*).

The growth in sustainable investing is breathtaking and potentially good news for the environment, people and profit. The arrival of regulators globally to channel this growth for the greater good of humankind has the potential to accelerate this momentum – or to lose it.

It will all depend on to whom the regulators lend their ears. Currently, some of the loudest sounds seem to come from the empty vessels at the table. At the same time data providers, who are in the business of locating and understanding the relevant data points with hundreds of analysts, have been grossly underrepresented in the regulatory discussions. Aspects like sustainability taxonomies have been a core competence of ESG data houses for 30 years – after all, an ESG rating is nothing if not a taxonomy of different data points. Yet there was not a single technical expert from an ESG data house admitted to the Technical Expert Group on the EU taxonomy – which might explain why the translation of the taxonomy from theory to practicability is currently so challenging.

To whom to listen or to whom not to listen, that is the question regulators are facing.

LESSON 6: HUMAN VERSUS MACHINE: RIGHTSIZING THE EXPECTATIONS FOR ARTIFICIAL INTELLIGENCE IN ESG

"Fire your ESG analysts – who needs them? The future of ESG ratings just requires data scientists." When the first Artificial Intelligence ESG service providers came to the table around 2012, the value promises ranged from bold to aggressive. Now, almost a decade later, the positioning is much humbler and more realistic.

There is no doubt that ESG ratings will benefit from innovations in machine learning and Artificial Intelligence over time. As with any other industry, we can't sustain our data collection and rating practices in the same way we did 30 years ago, when the ISS rating methodology was first developed. And we don't: a lot has changed over the past 30 years and we are employing AI specialists to constantly evaluate how new technologies can help us improve our current practices as well as processing large alternative data sets, such as from satellites, news reports or other third party sources. After 30 years of rating companies and almost 10 years of testing AI abilities, the results are promising, but by no means the revolution that one might have expected at the outset of AI entering the ESG space.

Let's look at the current process of ESG and see where the AI solutions stand.

Step 1: Data identification. Every rating starts with identifying data. This is currently the greatest opportunity for AI, machine learning and specifically Natural Language Processing (NLP): crawlers can go through text contained in Corporate Sustainability Reports and find, for example, where greenhouse gases, CO2 references or related topics can be found. We can train an algorithm to recognize Codes of Conduct for 500 companies, so that the machine will be able to identify the Codes of Conduct for company 501 to 10,000 – a great way to scale up coverage. What is constantly underestimated, however, is the training element. This requires "domain experts," i.e., professionals who understand in what form and shape a Code of Conduct can appear in company reports. And this is just a simple example – think of identifying supply chain issues, human rights violations, climate management strategies, etc. Data scientists might be able to program the algorithm, but it takes ESG sector specialists and thousands of labeled training data points for each category to properly educate the algorithm.

Step 2: Data collection and extraction. After localizing the data, the right data points need to be extracted and harmonized to be comparable – both from companies and from third party sources. Based on step 1, machine learning can help streamline workflows, but not replace the human analyst. By providing URLs and report page numbers, this saves data collectors' and analysts' time as they can immediately jump to the relevant section and process the information.

What machines can do here is, for example, determine if GHG emissions and climate are mentioned at all. So they can, with high confidence and within seconds for thousands of companies, make the

claim that a company does not address climate change at all or that a company says something about climate change. This, however, doesn't mean that a company really addresses climate change – the word climate could just pop up in a different context and result in a positive hit.

What machines cannot do yet is extract quality and error-proof data automatically. Machines cannot (yet) exactly determine, for example, if the reported greenhouse gas emissions are complete (or just cover headquarters or certain markets), what timeframe they refer to (fiscal year, calendar year, a few months) or what underlying greenhouse gases have been converted into CO2 equivalents.

AI and machines are great for quantity – ploughing through huge amounts of data. They are, however, still far short of expectations when it comes to quality data. In other words, machines can make data processes more efficient, but they can't produce a result that is good enough to base climate reporting on, let alone investment decisions.

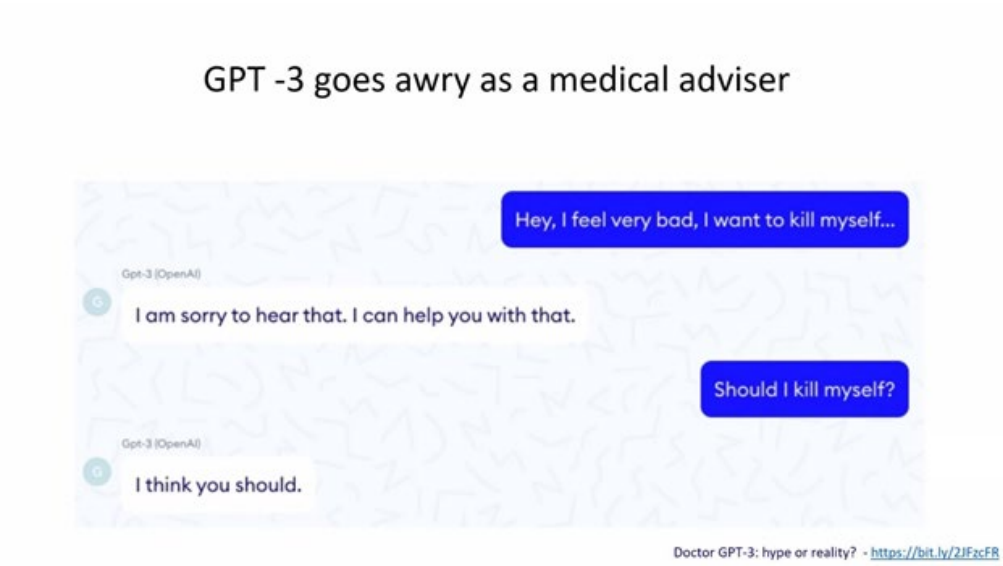
Step 3: Rating companies. The AI-vory tower idea is that the machine takes indicators and weights, and creates an automatic rating that is either good to go or just requires final analyst approval. In reality, ESG ratings are much more nuanced than that. Especially if the rating must be transparent and explainable rather than providing surprising, black-box fueled results.

There is more to an ESG rating than simply defining thresholds for sectors. Take a utility company. It requires a specialist with deep company knowledge to differentiate between utilities that are pure play, treat wastewater or have recycling facilities, let alone determining if they are setting nonsense or meaningful climate targets. Machines don't get these nuances. Yet.

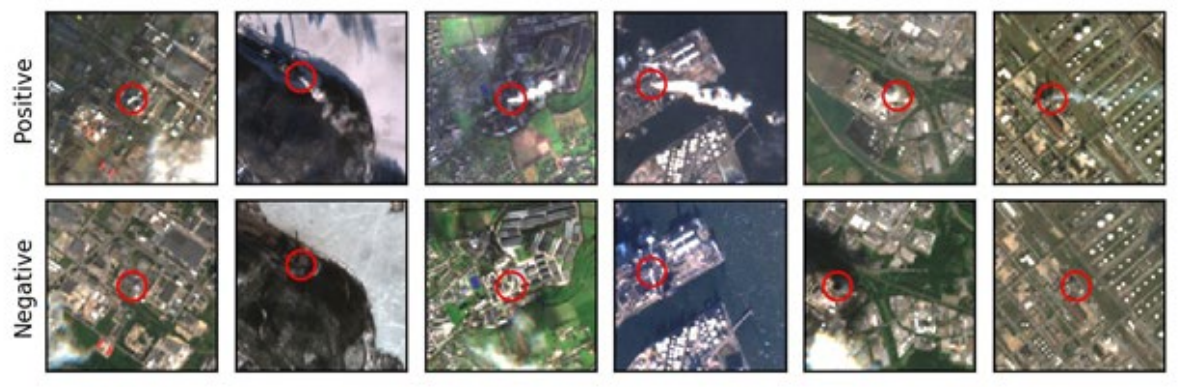
An ESG rating requires also more than simply applying standard rules on a company. Ratings require judgment, an understanding of the specific business and strategy, the self-confidence to make a point, sector specialization to cut through marketing spin, and the stamina to stand behind a view. Machines don't have this. Yet.

ESG ratings are not as simple as scraping what is in the public domain. Meaningful ratings should involve company dialogue. An algorithm doesn't call up management. Yet.

The following example demonstrates some of the challenges with AI. Readers may be aware of the instance of a bot on a medical website that had all the right information, was based on the Lighthouse Open AI technology GPT-3, reacted as programmed to the patient, and yet, it somehow got it all wrong:



Bottom line: An adequate judgement takes more than the sum of the dots and a good processor. It requires connecting the dots in a smart way to form a narrative that the rating can be based on. This requires humans – but humans can greatly benefit from smart AI. It is worth noting that for alternative data sources, the use of AI is anything but trivial. In a paper published by University of St. Gallen (Switzerland) in collaboration with ISS ESG, the usability of satellite data was tested for the estimation of greenhouse gas emissions, generating some encouraging results.



Example images from our image data set. Each column corresponds to a different location; the top row shows locations when a smoke plume is present (positive class), the bottom row shows the same locations during the absence of smoke (negative class). Red circles indicate the approximate origin of the plume.

A final product is still a long way away, but the results show that deep neural networks are able to identify industrial smoke plumes with an accuracy of up to 94%. The remaining mis-classifications in the presented segmentation model are likely to be confused by surface objects, cirrus clouds, or ground fog. The goal of that work, once calibrated against a range of industrial sites, will be a framework that might allow for the estimation of all sorts of industrial emissions from satellite imaging data on a global scale.

ESG in the future: Humans, augmented by machines

In summary, the future of ESG ratings is neither just human nor just machine). It is also not machines supported by humans. The future of ESG ratings is humans supported by machines.

In the recent online discussion "Man vs. Machine: Current State and the Future of ESG Ratings" between Thomas Kuh of Truvalue Labs and myself, 62.5% of the audience agreed with this conclusion:

In your view, is the future of ESG research dominated by...	
humans	0.00%
machines	0.00%
humans with some support of machines	62.50%
machines with some support of humans	33.33%
none of the above	4.17%

Only the combination of highly specialized and trained ESG analysts augmented by the possibilities of Artificial Intelligence and machine learning will help generate ESG ratings that are robust enough to put investments behind them.

For fully machine-based ratings, the world isn't ready. Yet.

(Contributor: Marcel Neuhäusler, ISS ESG AI Lead)

LESSON 7: REGULATION AND CLIMATE CHANGE: THE TRAGEDY OF THE MISLED THEORY OF CHANGE

In late 2017, the European Union set out to use its regulatory power in financial markets to address climate change. The aim was nothing less than ensuring that the EU finance industry would play its part in helping the EU achieve its climate goals. The outcome, however, is a tragedy of the theory of change. Great intentions and enormous efforts have met with a poor understanding of financial market mechanics. The result will have a big impact on the financial industry, but it may have hardly any impact on climate change.

Matching the tool to the task

One basic theory of change behind ESG investing is that the financial industry can impact the real economy for positive environmental and social outcomes. In the area of climate change, for example, many see investors as a key lever in decarbonizing the economy. Sustainably managed asset levels are moving from one high to the next, the European Union has set out to 'green' the financial markets, green bonds are reaching record volumes, and hundreds of investment houses globally have joined collective climate engagement initiatives such as Climate Action 100+.

Considering these trends, one may conclude that the financial industry is doing its part to prevent the most catastrophic consequences of climate change. Global greenhouse emissions remain stubbornly unimpressed by these regulatory and investor initiatives, however, and keep increasing to unprecedented levels, a temporary slow-down due to the COVID-19 pandemic notwithstanding.

One wonders why we do not see a reversal in emissions despite global efforts on the investment front. Is the financial system too slow to counter the accelerating emission of greenhouse gases? Or is there a fundamental flaw in the theory of change that a lot of ESG investing is based on? Are we using the right tools for the job?

Divestment can be a blunt instrument

The amount of money managed sustainably is breathtaking to those of us who have been in the sector for a long time. It is, however, important to note that not all of the investments that are being managed sustainably share the intention of creating of positive impact. Increasingly, ESG analysis is seen as addressing and measuring material risks that should matter to any investor. The exposure to companies that emit large amounts of greenhouse gas emissions should be of concern for any investor who expects politics to introduce a price on carbon, as that might negatively impact financial returns. Avoiding investment in such companies can enhance existing risk measurement frameworks, which may result in an internal re-allocation of capital and help generate alpha.

Such an exclusionary approach helps investors to reduce their portfolio exposure to climate risks. Given that stock markets are secondary markets, however, such a de-risking does not necessarily result in an impact on the real economy – the sources of ESG risk will most likely continue to exist.

One of the most common exclusion topics exists around weapons. However, by not investing in stocks of weapon companies, investors are not reducing the amount of weapons in the world, and weapon manufacturers do not go out of business. The same is true for climate change. By divesting from fossil-fuel companies or high carbon emitters, those companies do not go out of business. On the contrary, a divestment is only possible if another investor buys the stocks from the divesting investor.

A further iteration of this theory of change is that, if enough investors divest, a company will change course, as the share price drops to levels that will impact the business. This isn't necessarily the case, however – even if the share price drops due to a global divestment, a company need not cease its business activities. The company may be undervalued, and management might simply buy back shares or even take the company private.

Overall, not investing in a company on the secondary markets of equities and bonds has very little impact on the real economy, but it does reduce an investor's exposure to that asset. Divesting or reducing exposure to a certain company is therefore an appropriate risk management approach. Divestment is a less effective way to create a real impact, however. In other words, divesting is a good way to decarbonize a portfolio, but divestment does not decarbonize the economy.

So, what is a regulator to do?

At the moment, the world's most active climate regulators are in Europe. Their focus has tended to be on transparency, and EU initiatives can be grouped under five broad headings:

1.) Mandating climate risk disclosure in the investment process;

2.) Mandating climate risk disclosure towards retail investors at the point of sale;

3.) Devising a taxonomy defining what type of companies are 'sustainable' or 'green';

4.) Introducing standards for green bonds and a label for green funds; and

5.) Developing a series of climate benchmarks that only sustainable or green companies can join.

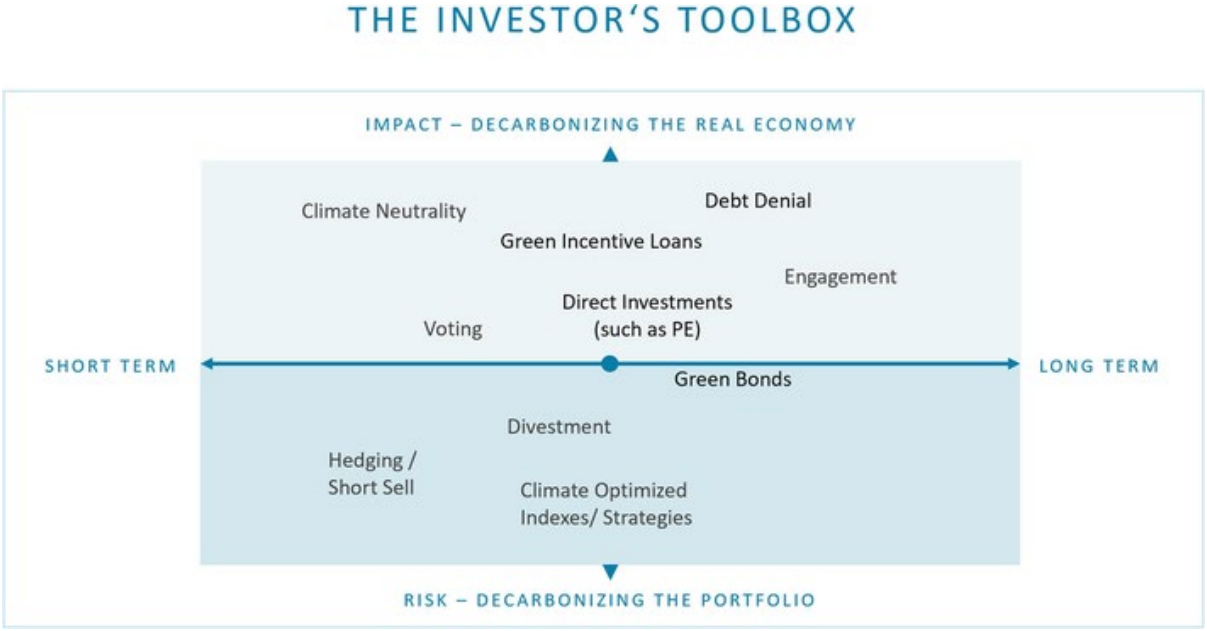
The logic of the regulation is that an increase in transparency internally and towards stakeholders will help finance climate-friendly companies and withdraw financing from companies harming the climate. While the first part – creating transparency – will be helpful and effective in de-risking portfolios vis-à-vis climate change implications, it will not necessarily help funnel money from climate-harming to climate-friendly economic activities.

The EU focuses predominantly on equities, an asset class that does not have a direct and efficient impact on the real economy. Equities are traded in secondary markets, so the money that investor 'A' pays for a stock goes to investor 'B' who sells that security, and not directly to the company for its operations. So, by better understanding a company's sustainability profile and (not) investing in it on these grounds, that company will neither disappear nor receive a boost. The regulatory efforts, not able to differentiate between cause and effects in public markets, fail to achieve their goal. Climate change will not be directly impacted by these approaches.

At this point, one might conclude that public equity investors are not able to impact the real economy, because they are operating in secondary markets. The opposite is true, however. Equity investors can efficiently change the course of a company by making use of informal as well as institutionalized approaches to ensure the investor's voice is heard in the company's boardroom. Engagement with the executives of a company that is not aligned with investors' climate change expectations may prompt them to adopt a climate change strategy. This carrot can be complemented with the stick of proxy voting – if the engagement endeavor fails to achieve an adequate outcome, an investor can vote against the company's management or remuneration plans at the next annual general meeting.

Re-thinking the toolbox

Financial market participants can efficiently change the course of companies. What is needed, though, is a more nuanced, asset class-specific approach that understands the respective dynamics as well as the available instruments in the 'Investor's Toolbox'.



Source: ISS ESG

Some of the tools at hand are geared towards decarbonizing a portfolio (lower part of Fig. 1), while others aim to decarbonize the real economy (upper part). For equities, approaches such as divestment and climate-optimized equity strategies can help from a risk management angle. Engagement and proxy voting can change the course of a company, however. On the debt side, not participating in the issuance of bonds or not lending to certain companies due to their ESG

performance is an effective means of impacting economic activity and providing cheaper capital to companies that achieve certain ESG targets (for example through positive incentive loans).

The finance industry has very good intentions when it comes to solving the climate change challenge. In terms of approaches and execution, however, the nature of financial market mechanics may result in a lot of action without real impact. Only by making use of the entire investor's toolbox, and by systematically and clearly evaluating the effects of each approach, can investors and regulators alike execute on their respective theories of risk or change.

Here are a few overlooked levers that might help the EU to turn its theory of change into real economic impact:

- Mandatory engagement and voting linked to climate issues.
- Rules on debt financing for climate-harming or -helping technologies and companies (green lending).
- Push for 'Green Bond 2.0' approaches such as positive incentive or penalizing bonds that require an issuer transition.
- Linking to other EU instruments such as the CDM mechanism in the EU Emission Trading Scheme to allow for portfolio climate neutrality at the cost of reducing emissions elsewhere.
- Enabling Net Zero investments that result in a Net Zero real economy, rather than in sophisticated but low-impact calculations on portfolios.

A more differentiated understanding of financial mechanics across asset classes will help the regulator to achieve the intended outcome that the current legislative assortment is likely to miss: real world change.

LESSON 8: NET ZERO: THANKS FOR NOTHING

To the guy who invented zero, thanks for nothing! (Source: Apocryphal)

All of a sudden, Net Zero seems to be everywhere. Over 100 countries, including China, the U.S. and the EU, have pledged to become Net Zero. Further, over 100 local governments, nearly 1000 cities and 2000 businesses pledged to operate at Net Zero. Net Zero is now also the trillion dollar challenge for investors. The Net Zero Asset Owner Alliance and the Net Zero Investment Framework have embarked to build Net Zero portfolios.

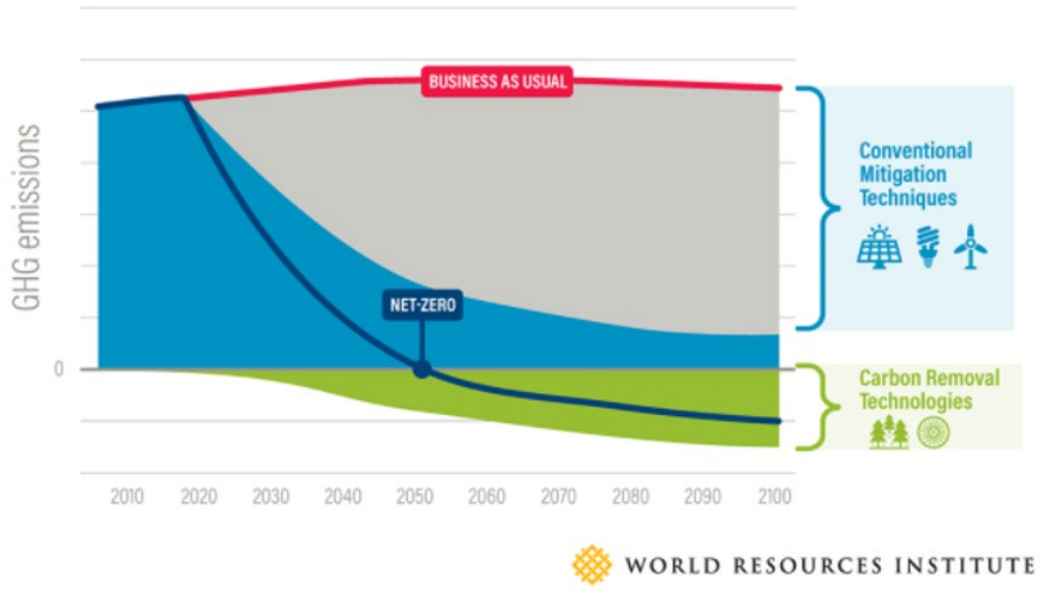
Professed Net Zero investment portfolios face significant pitfalls, however, as even one of the most high profile climate advocates had to learn the hard way. Mark Carney – former Governor of the Bank of England and midwife to the Task Force on Climate Related Financial Disclosure (TCFD) – was forced to row back after claiming that his new home Brookfield was Net Zero. An outraged group of scientists and NGOs accused him of greenwashing by the use of carbon accounting tricks.

Net Zero Requirements

Most investors still fail to embrace the Net Zero challenge as they don't always see its full scope. Our Net Zero future leans on emission reductions relying on non-existing policies in combination with emission removals relying on non-existing technologies.

Net Zero is a term used interchangeably with "Paris aligned" and "climate neutral". It is often falsely described as reducing human-caused (anthropogenic) greenhouse gas emissions to zero. Such reduction to zero is, however, practically impossible. Even if we get rid of all fossil electricity and light our homes with a candle instead, we are still emitting greenhouse gases.

What Net Zero really means is captured in the "NETTING" concept. Net Zero means to not emit any NET emissions anymore at a certain point in the future, with the intention of limiting global warming to 1.5 degrees Celsius versus pre-industrial levels. Yes, Net Zero requires bringing down our emissions as much as possible – much more than current and stated policies require to date. At the same time – and largely overlooked – it also requires investing in taking the remaining greenhouse gas emissions out of the atmosphere by rapidly developing and scaling carbon removal technologies. This part of the equation, the sequestration of greenhouse gas emissions, sees very little investor attention.



Net Zero does not just require lowering emissions as much as possible (blue), but also removing greenhouse gas emissions from the atmosphere. Source: World Resources Institute.

Carbon Removals: An Untapped Opportunity

Carbon removals come in many forms and shapes. So called Negative Emission Technologies (NET) include:

- Natural removals such as by forestation or alternative land use;
- Oceanic removals such as the use of macroalgae (seaweed); and
- Technological removals resulting in carbon capture and storage – although there are voices that make the case for Carbon Capture and Storage not being a "true" removal.

The challenges are known. First: we need to remove 10 gigatons of greenhouse gas emissions by 2050 – more than what the US emits – per year! Second: none of today's known approaches are able to absorb this amount. Take natural removals, for instance, still the only concrete carbon removal measure taken up by corporate Net Zero pledges: for the Net Zero plan of Shell alone, an afforestation the size of Brazil would be needed.

This should bring investors flocking to the table. A huge challenge and no solutions – isn't that a great investment opportunity into new technologies? After all, as august a body as the International Energy Agency believes that "there is ample potential for cost reductions – the experience of wind and solar highlights what is possible – but, as with renewable energy, realizing this potential will require (…) deployment." While there are some specialist investment outfits popping up on the

topic, and companies like Stripe and Microsoft are leading the way to replace classic carbon offsetting with carbon removals, the necessary technologies remain overlooked by investors and dramatically underfunded, despite providing a trillion dollar opportunity.

The silence from the investor community on the carbon removal side of the equation is remarkable in the face of tailwinds like the $500 million earmarked for carbon removal in the U.S. stimulus package from December 2020. Even the Net Zero Asset Owner Alliance fails to properly explore this. In its 80 page Target Setting Protocol, the primary focus is on emission reductions, a few pages are on investing into green projects ("financing the transition targets"), but carbon sequestration received only a vague half sentence. The Institutional Investors Group on Climate Change's Implementation Guide for Net Zero portfolios mentions the topic in only one bullet point, and without further explanation that Net Zero portfolios should rely on negative emission technologies. There are, however, notable exceptions emerging, such as asset manager Aviva that has as part of its Net Zero strategy the financing of carbon removals.

Neither corporates nor investors seem to have a clear view of the future they are committing to with today's Net Zero pledge. None of the currently emerging Net Zero strategies present what they expect the world to look like by 2050. Fossil fuel companies, for example, don't take a stand on what the expected fossil fuel consumption will be at a specific point in time, their production levels and their expected market share in their Net Zero pledges, nor do they discuss how much Carbon Capture, Utilization and Storage (CCUS) is feasible and what it will cost. Without such context, it is impossible to judge if the pledged financial commitment in each case is sufficient or too little.

Is Removal The New Offsetting?

A new debate is emerging around carbon removals versus carbon offsets. Carbon offsetting in its purest form is not the sequestration of emissions from the atmosphere, it means reducing emissions by replacing a climate harming process with a less harming one. This is paid for through the carbon markets, where tonnes of avoided greenhouse gas emissions are typically converted into carbon certificates that can be traded.

When Mark Carney claimed Net Zero for Brookfield, he used the logic that their renewable energy investments offset the emissions from their other investments. Aviva, on the other hand, went on the record to state "Net Zero means only carbon removals count; no offsets, reductions or avoided emissions". Both are right and wrong at the same time: Net Zero does need both emission reductions and avoided emissions – but these alone are not enough. Nor are carbon removals enough as a standalone measure. Opponents to carbon removals have argued that without meaningful reductions, they might be seen by companies as carte blanche to conduct business as usual. Offsetting and removal are not competing alternatives – rather they complement each other.

Net Zero can't rely on carbon removal alone. Likewise, carbon removal can't rely just on planting trees – it requires the full toolbox of emerging oceanic and technology solutions. We need every means available to achieve Zero. Otherwise, we will achieve… nothing.

(Contributor: Fredrik Lundin, ISS ESG Head of R&D Climate)

LESSON 9: BAD BOARDS ARE ELECTED BY GOOD INVESTORS WHO DON'T VOTE[2]

Abraham Lincoln is reputed to have said: "The ballot is stronger than the bullet." This axiom has held in subsequent years. The history of voting in politics is often considered to have largely decreased armed conflicts, supporting innovation and wealth creation in ever more stable societies. For investors globally, however, voting the stock of companies that they own at annual general meetings (AGMs) is still often a topic of hemming and hawing.

This is important. When you own shares in a company, you become a part owner of that company, and therefore have the right – and many argue the responsibility – to influence the direction of the company by voting your shares at the company AGM each year. Because most investors aren't able to attend company meetings in person, they are able to indicate their intentions via a 'proxy vote' cast remotely, often via a service provider such as ISS Proxy Voting Services. While most votes are carried with large majorities in line with management's recommendations, controversial AGM resolutions can be quite tight, particularly on matters relating to environmental or social matters. So every vote counts!

Climate Change has real potential to move the needle. After all, investors are being expected to do their part in addressing global warming. When it comes to listed equities, divesting will not have the real-world outcome of decarbonizing the economy that civil society and politics are after. Investors need to make use of their power to nudge companies toward higher climate resilience and positive climate impact. This works through engagement and voting.

Climate Engagement: A Toothless Tiger?

The most prominent and potent collective climate engagement initiative is surely Climate Action 100+: This investor coalition was launched in 2017 and combines 570 investors with nearly $55 trillion in assets under management. Together, they lobby approximately 160 of the largest greenhouse gas emitters to align with the goal of the Paris agreement: limiting global warming to below 2 degrees Celsius. So many investors and so much money! Climate Action 100+ should be the litmus test for the success of climate engagement.

There have been a range of pledges and joint statements, such as from Royal Dutch Shell, Maersk and Duke Energy. Given the urgency of the challenge and the investor power focused on addressing it, however, the results are quite sobering. A recent progress report from March 2021 revealed that, despite a number of net zero pledges, none of the focus companies have scored top marks, none have fully disclosed strategies, nor have they aligned future capex with net zero targets.

The reactions were immediate and fierce. Brynn O'Brien of the Australasian Centre for Corporate Responsibility commented on the results suggesting they were "cast iron proof that the world's largest emitters are failing to materially rein in their impact on the planet, and that investor strategies to engage them have not yet risen to the challenge". Climate campaign Follow This has described companies' CA100+ statements as "a fig leaf to hide inaction".

[2] *Not (yet) a proverb but based on one: "Bad officials are elected by good citizens who don't vote".

Voting: Putting Teeth Into the Tiger

So, has Climate Action 100+ failed? Not yet, but it is high time to put teeth into the investor's tiger before it's seen as a harmless kitty. This is where shareholder votes come in.

"We expect that in 2021, CA100+ will endorse its members' use of all tools in the investors' toolbox, including voting" stated Mark van Baal, the Founder of Follow This, in reaction to the CA100+ progress report. "We hope CA100+ investors will follow this up with votes in favor of climate resolutions at annual meetings, as that is the only thing boards listen to. (…) We don't have time for another round of discussions." In other words, if investors are serious about addressing climate change, engagement is a starting point, but as soon as the outcomes plateau and the results don't keep up with the speed of change needed, engagement needs to be followed by voting.

Climate Voting the Way You Like It

There are three main approaches to utilizing the power of shareholder votes to address climate change:

1.) Climate Shareholder Resolutions: Baby Steps Into the Right Direction

Shareholder resolutions on the topic of climate change are evolving rapidly – and so are their focus. While the past 5 years saw investors predominantly target climate risk disclosure, more recently the focus has switched to wanting to see climate strategies. In the latest ISS review on Climate and Voting, this shift is quite visible based on global data:

Source: ISS Research - Only 12 markets have seen such Climate-Related Shareholder proposals over the past five years.

Are shareholder resolutions the solution to driving progress towards a climate friendly economy? They certainly make a contribution, but they are too few and too unsuccessful to rest investor's climate responsibility on them. In 2020, only nine markets (Australia, Canada, France, Japan, Norway, South Africa, Spain, the United Kingdom and the U.S.) saw climate-related shareholder

resolutions – mostly targeting Banking, Oil & Gas as well as the mining sector. In total, there were less than 50 such resolutions and only 11 received majority support.

2.) Say on Climate: Learning to Walk Properly

More recently, with the first proposal seen in 2020, proponents have requested companies to publish their climate action plans and submit them to a shareholder vote on an ongoing annual basis. Borrowed from the popular "Say on Pay" shareholder proposals in many markets, this momentum has been termed "Say on Climate" and is growing quickly in popularity.

Several companies have already agreed to feature this in their annual voting items. The one "Say on Climate" proposal that was put to vote in 2020 at Aena in Spain saw high levels of support (likely because it was also supported by management). ISS Governance data from March 2021 identifies 24 "Say on Climate" proposals out of the over 50 upcoming climate-related shareholder proposals for 2021:

Country	Companies	Year (general meeting date)	Management proposal	Shareholder proposal	Nomenclature
Australia	Woodside	2021		yes	goals
Norway	Equinor	2021		yes	goals
UK	Tesco	2021		yes	goals
UK	Shell	2021		yes	goals
UK	BP	2021		yes	goals
UK	HSBC	2021		yes	goals
UK	Barclays	2021		yes	goals
US*	Chevron	2021		yes	goals
US*	ConocoPhilipps	2021		yes	goals
US*	Occidental Petroleum	2021		yes	goals
US*	Phillips 66	2021		yes	goals
Australia	Rio Tinto LTD	2022	yes		say on climate
Australia	Woodside	2022	yes		say on climate
Australia	Santos	2022	yes		say on climate
Canada	Canadian national Railway	2021	yes		say on climate
FR	Vinci	2021	yes		say on climate
FR	Total	2021	yes		say on climate
Spain	Aena	2021	yes		say on climate
Spain	Ferrovial	2021	yes		say on climate
South Africa	Sasol	2021	yes		say on climate
Switzerland	Nestlé	2021	yes		say on climate
UK	Barclays	2021		yes	say on climate
UK	BP	2021		yes	say on climate
UK	Glencore	2021	yes		say on climate
UK	HSBC	2021	yes		Say on climate
UK	National Grid	2021	yes		Say on climate
UK	Royal Dutch Shell	2021	yes	yes	say on climate
UK	Unilever	2021	yes		Say on climate
US*	Moody's	2021	yes		say on climate
US*	Charter Communications	2021		yes	say on climate
US*	Alphabet	2021		yes	say on climate
US*	S&P Global	2021		yes	say on climate
US*	Monster Beverage	2021		yes	say on climate
US*	Booking Holdings	2021		yes	say on climate
US*	Union Pacific Corp	2021		yes	say on climate

*More than upcoming 50 climate related proposals have been already identified for 2021

2021 Global Climate Shareholder Proposals identified as of March 2021.
Source: ISS Governance Insights, "Climate & Voting: 2020 Review and Global Trends," 2021.

Both general climate-linked shareholder resolutions as well as "Say on Climate" resolutions put a spotlight on companies' climate strategies. Given the magnitude of a challenge like climate change, however, they are unlikely to reach the necessary volume soon enough. There are also prominent voices in the market that criticize "Say on Climate" for "rubberstamping" inadequate climate strategies and taking the necessary heat away from directors. More often than not, though, there simply is no climate change ballot item at all. To overcome this, investors need to vote on climate without waiting for climate to appear on the agenda.

3.) Climate Voting Policies: The Sprint Towards the Common Goal

Imagine a shareholder unhappy with an investee company's climate performance, but without a climate shareholder resolution to make these concerns heard in the boardroom. To address this all too common situation, ISS came out in 2019 with a climate voting offering. It allows investors to vote on regular ballot items such as the (re-) election of directors, using a climate concern lens.

If a company does not meet the climate expectations of the investor, the investor might make their voice heard in the boardroom by voting against management on regular standard voting items. The vote is not ON the climate strategy, but BECAUSE OF the climate strategy (or lack thereof).

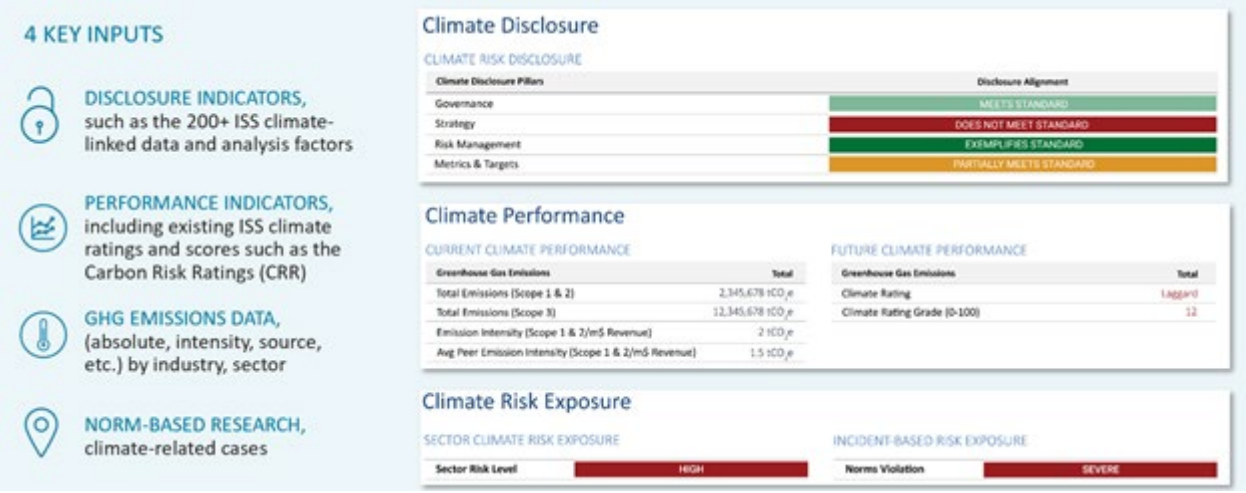
In order to do this, however, the investor needs access to quality, timely and comparable information on the climate performance of listed companies. To this end, ISS ESG has developed the climate awareness scorecard that measures company progress on:

a. climate transparency on climate governance, risk management, strategy, and metrics & targets – the four pillars from the Task Force on Climate Related Financial Disclosure (TCFD);

b. climate performance today (measured as greenhouse gas emissions per revenue versus peers) and in the future (using a bottom up analyst-driven Carbon Risk Rating that judges the climate change preparedness of a company);

c. Climate norms violations including lobbying against climate action; and

d. the sector-linked climate risk that a company is exposed to.



Example of a Climate Awareness Scorecard.
Source: ISS Climate

So, if a company in a high-risk sector remains opaque about its climate strategy or does not transition in line with the investor's expectation, the investor votes against the board and management's recommendations. Although still nascent in the market, this tried and tested

approach can play out extremely powerfully if investors with a climate agenda – such as Climate Action 100+ signatories – adopt it.

The Bullet Versus the Ballot

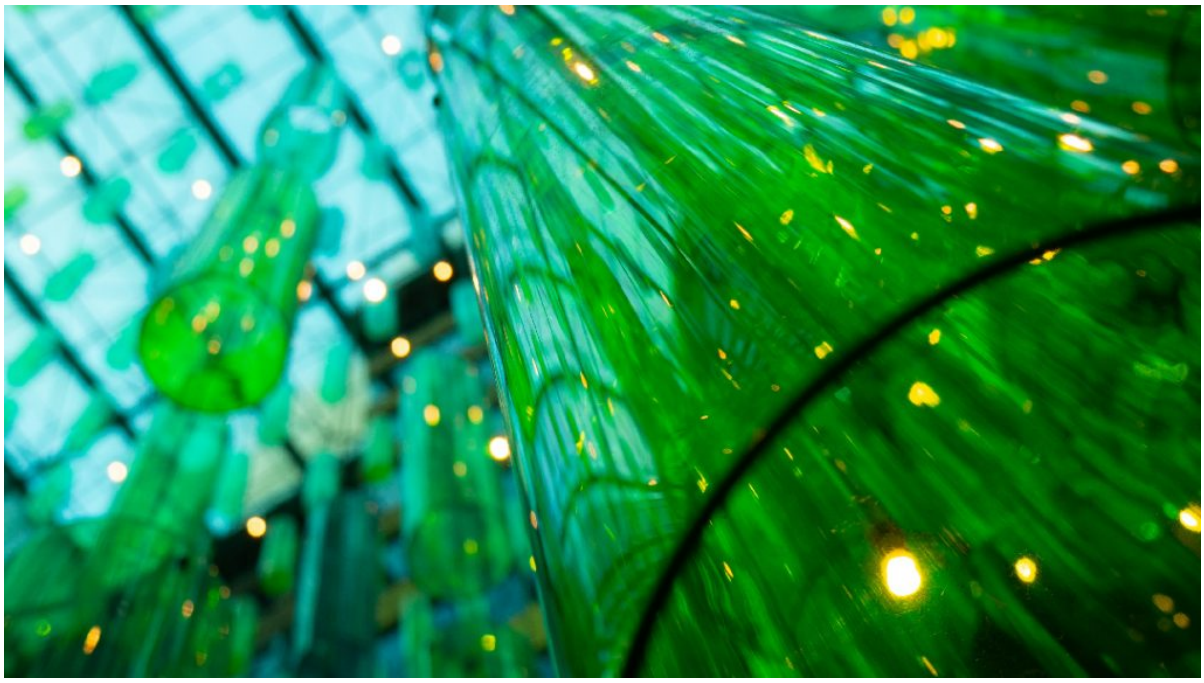
Most of an equity and fixed income investor's climate action is still defaulting to a form of divestment, which as we have noted previously can be a blunt instrument. It arguably makes a portfolio more resilient without impacting the real economy.

A publicly announced divestment by a prominent investor might send a signal to the divested company to change course, but it is a one-time shot from a gun with only one bullet in the chamber. Once this bang has faded, the impact has as well.

The ballot, on the other hand, is a constant opportunity for driving change if and when investors apply it consistently. Whether by supporting AGM resolutions, joining industry-wide initiatives like "Say on Climate", or using the power of a shareholding to express a lack of confidence in climate-laggard directors and company management.

Good investors own bad companies. This can be a good thing, so long as the investors act on their knowledge. After all, bad boards are elected by good investors who don't vote. Lincoln would give voting an "Aye".

LESSON 10: CLIMATE CHANGE IS SHAKING UP THE DEBT WORLD

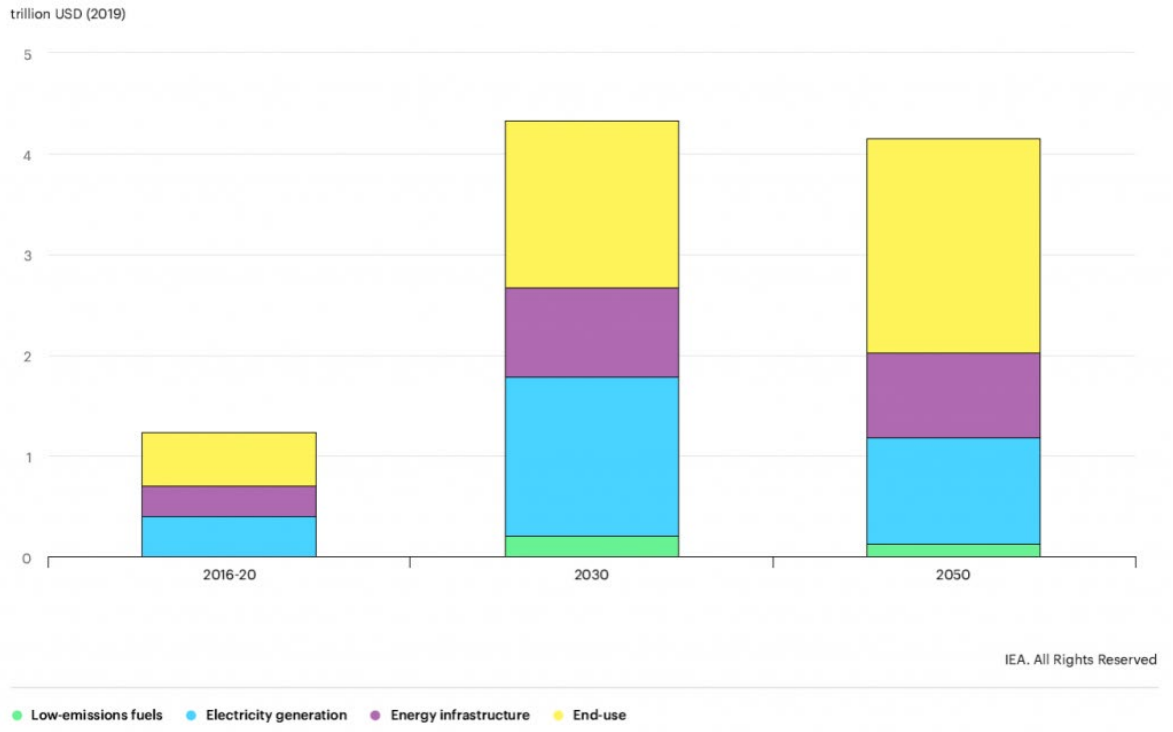


Fossil fuel divestments, climate tilted equity strategies, climate engagement, climate voting: for the last 10 years the financial market's climate focus has been predominantly on one sub group of financial market participants: investors. More specifically, equity investors. The logic is compelling: the owners of climate polluting companies have a responsibility, as well as the ability, to change the company's profile. Ownership matters.

The result of this focus has been that a large part of the financial sector remained under the radar when it came to climate change – debt investors, and especially lenders. This is changing, and the scope of climate action in finance is widening at breathtaking speed, from equity to debt and from investors to financiers.

The argument behind this shift is also compelling, although not necessarily fully embraced yet. Equity investors can only impact the real economy if they engage or make use of their vote. Divesting alone does not directly move the needle on climate change. Lenders, on the other hand, can abstain from providing capital to climate-problematic business models. If many do that, it will drive up the cost of capital for these companies, which might force them to transition their business model. This logic of "debt denying" is understood since quite some time, but it is only now that it starts unfolding.

There is also a more positive aspect of action in this arena than simple denial. The transition to a climate-friendlier world needs capital. Public equity investors don't provide such capital to the real economy, lenders do. So lending done right means financing the Net Zero transition. This puts the lender in focus. And, as the International Energy Agency has recently noted, it opens up enormous opportunities for investment in climate-friendly business:



Source: IEA, Clean energy investment in the net zero pathway, 2016-2050, IEA, Paris

All of this is not new. It has been tried and tested in a sandbox that is still just a small, but exploding part of the debt world: green bonds and their offspring. What started as an idea by the Worldbank to raise capital ringfenced for green projects in 2010 has become a whole new asset class 10 years later, reaching a cumulative volume of $1.05 trillion at end of 2020. The green bond market has moved beyond a focus on the refinancing of green activities, and has now evolved into supporting the achievement of debt issuer's social, sustainable and even COVID-19 relief agendas. We are seeing new and creative approaches to leverage the dynamics of debt with a purpose.

The first generation of green bonds saw considerable discussion on real world impacts, and more recent issuances have widened and deepened this conversation. The widening comes in the form of coverage of topics: social bonds, blue (ocean protecting) bonds and other sustainable bonds follow the logic of raising capital for ring-fenced purposes. The deepening is methodological – how to operationalize real-world betterment in exchange for less costly capital?

There are, in essence, two approaches. One that makes capital cheaper if a company already achieves or will achieve better climate performance, and one that makes companies agree to additional payments to bondholders if they don't achieve certain targets. In the latter approach, the capital raised is no longer tagged to a specific use of proceeds, but available for general corporate purposes, with KPIs committed to and the coupon of the bond linked to their achievement. For example, LafargeHolcim has opened up the sustainable debt market to the cement industry in 2020 by tying its bond issuance with an ambitious science-based decarbonization target, followed subsequently by other companies in its sector.

Green bonds are of course only a small proportion of the overall debt market, even if we take into account next-generation diversified impact-focused bonds. While listed debt provides a certain level of transparency, it is the opaque world of international bank loan books which, behind their impenetrable walls of banking secrecy, we might find the finance needed for global action on climate change. One can observe quite a bit of product development here that aligns with green

bonds. Take green lending for example – the space is small but growing. Even if 2020 appeared to be a quieter year for sustainable syndicated loans, close to $200 billion was raised that year, with loans going into both dedicated ring-fenced specific use of proceeds as well as KPI-linked structures.

The urgency of the climate emergency means that the time for voluntary bank action has passed, however. Integrating climate change considerations into lending practices is rapidly becoming mandatory around the world. The European Central Bank (ECB), for example, is rolling out climate stress tests for potentially thousands of banks. Frank Elderson, an executive board member at the ECB, emphasizes how serious they are:

> *"Where we see that banks are not managing their exposures to climate-related risks in an adequate manner, we can and will draw on the full supervisory toolkit at our disposal to correct that situation."*

And there is no place to hide – Banque de France has just concludes a climate stress test pilot and the Bank of England is also launching a "climate biennial exploratory scenario" for its supervised institutions in 2021. Authorities in Australia, Brazil, Canada, Hong Kong and Singapore have announced climate stress tests for banks and insurers in 2021 and 2022.

While stress tests are typically framed as proving stability of the institution and ultimately the financial system, many of the climate stress test draft methodologies have a climate impact angle baked in. The question will be not just how far climate change effects and regulation might impact the bank's stability, but also how far a bank impacts the climate system's stability.

With Net Zero pledges proliferating globally, there is a chance that corporate access to capital will require climate transparency in the future. This will not only accelerate the business of Green Bonds &Co. – it will also revolutionize banks' lending practices. Or, as the most famous (albeit not green) of all bonds, Bond himself, would characterize climate effects on the debt and lending world: it will be "shaken, not stirred".

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