

Thematic Intelligence

ESG 2.0

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Executive Summary

ESG 2.0 marks a shift towards stricter environmental rules

Environmental, social, and governance—or ESG—is moving into a different era, which we call ESG 2.0. In this second phase, there will be a greater focus on the ‘E’ component, with a shift from a voluntary regime to a mandatory one, driven by government mandates rather than consumer pressure. A host of new environmental laws are in the pipeline, relating to mandatory reporting, carbon pricing, and carbon import tariffs, as well as more state support and investment in clean energy technologies. Companies unprepared for ESG 2.0 face higher costs and lost sales.

The EU has the biggest regulatory pipeline

The EU will disrupt global industry by adding more sectors to its emissions trading system and phasing in the world’s first carbon border tax. This is on top of a host of other ESG reporting and due diligence requirements that will apply to both EU and non-EU businesses.

The US is set to become the biggest investor in clean industry

The Inflation Reduction Act (IRA), President Biden’s landmark climate policy, is the largest subsidy for clean energy and climate solutions in US history. It will direct \$400 billion to develop US-based clean energy and electric vehicle manufacturing, as well as their supply chains. Anti-ESG states are among the biggest beneficiaries of IRA funding, which may make them more amenable to future climate policies.

China dominates green technologies

China produces 85% of the world’s solar cells and processes the majority of the world’s lithium, cobalt, and other minerals needed for energy transition. China’s green technology leadership is driving other regions to invest in green technology production. China is also expanding its own emissions trading system (ETS) and is committed to decarbonizing its industrial sectors. With both China and the EU expanding their ETSs, other countries are likely to follow by creating new ETSs or expanding existing ones.

Companies must prepare for ESG 2.0

ESG 2.0 will be less forgiving of poor ESG performers, especially on environmental issues. Under ESG 2.0:

- Companies that fall behind on decarbonization will pay higher costs and lose sales.
- Companies will be held accountable for ESG performance across their value chain, not just their own operations.
- ESG-related marketing and communications will attract greater scrutiny from regulators and the anti-ESG movement.
- Companies that cannot produce robust ESG data, especially emissions data, will struggle to trade internationally, even if they are not covered by mandatory reporting requirements.
- Companies that cannot provide low-carbon goods and services will miss growth opportunities.

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Related reports

- [GlobalData’s ESG Framework](#)
- [Climate Change](#)
- [Global Environmental Trends by Sector, 2022](#)
- [Global Social Responsibility Trends by Sector, 2022](#)
- [Global Corporate Governance Trends by Sector, 2022](#)
- [The Circular Economy](#)

Report type

- Single theme
- Multi-theme
- Sector scorecard

Thematic Briefing

ESG 1.0 is over

Corporate interest in environmental, social, and governance (ESG) issues began to gain momentum in the years following the 2015 adoption of the Paris Agreement, an international treaty on climate change mitigation, adaptation, and finance. The agreement was signed by 196 nations—including major greenhouse gas (GHG) emitters the US and China—that all committed to keeping global warming well below the agreed limit of 2°C above pre-industrial temperatures. It marked the beginning of ESG 1.0, in which companies began to come under increasing pressure to consider the ethical impact and sustainability of their operations. This went beyond emissions, extending to companies’ broader environmental practices, social responsibility, and corporate governance.

In response to this pressure, and identifying a marketing opportunity, companies began to set targets for slashing emissions and publish ESG disclosures following voluntary guidelines such as the Global Reporting Initiative (GRI). ESG ratings, which provide investors with a way to gauge the robustness of company ESG commitments and credentials, became mainstream and the number of providers increased. Data from GlobalData’s Company Filings Analytics Database, which tracks the filings of around 15,000 companies worldwide, shows that mentions of ESG in company filings increased exponentially over the following six years.



Much of the initial momentum behind ESG 1.0 came from the financial sector. The world’s largest asset managers, pension funds, and sovereign wealth funds joined initiatives such as the UN Principles for Responsible Investment (UN PRI), committing themselves to engage with their portfolio companies on ESG issues.

ESG began to take on new importance in 2021 when Engine No.1, a relatively unknown hedge fund, won a shareholder voting campaign against Exxon, forcing the oil giant to appoint three directors more capable of handling the global transition away from fossil fuels. It was a sign that stakeholders were becoming less forgiving of sub-par ESG strategies. Exxon’s defeat was accompanied in the same year by the first stages of the EU’s regulatory push on ESG; its Green Taxonomy and Sustainable Finance Disclosure Requirements (SFDR). This regulation controlled which investment funds could be labeled as sustainable.



Then followed a tumultuous 2022. Russia invaded Ukraine, sending gas prices to record highs. The asset management arms of Goldman Sachs and BNY Mellon received fines for greenwashing—where sellers overstate the green credentials of a product or service - while the chief executive of German asset manager DWS resigned after its offices were raided over greenwashing accusations.

ESG then ran into political pushback in the US. Several US-based financial institutions including BlackRock, the world’s largest asset manager, had started factoring ESG considerations into their investment decisions. BlackRock’s chief executive Larry Fink also urged portfolio companies to set targets for reducing emissions and produce reports showing how they were managing climate risks. In response, a coalition of 19 US states wrote to BlackRock in August 2022 arguing that it was putting politics above financial returns. The states were concerned that this would lead to lower returns on their public sector workers’ pension savings. ESG was also becoming a partisan political issue following the passing of President Biden’s Inflation Reduction Act in the same month. It did not end there. Before the month was over, 21 Republicans from the US House of Representatives wrote to the US Securities and Exchange Commission (SEC), requesting it rescinds its planned rules to make listed companies produce mandatory reports on their emissions.

Companies now have to be careful about their communications and strategy on ESG. Regulators are increasingly keen to scrutinize them, politicians might single them out, and stakeholders are demanding action to meet ESG commitments. These are some of the hallmarks of the second phase of ESG.

ESG 2.0 is mandatory

ESG, especially the ‘E’ component, is now shifting from a voluntary regime to a mandatory one, driven by government regulations rather than consumer and shareholder pressure. It is no longer enough to have an ESG strategy focused on reporting and setting targets for some distant future date. Companies now need to show that they are taking action on ESG issues, especially emissions, across their value chain. The graphic below shows what companies can expect during ESG 2.0.

Companies need to prepare for a new phase of ESG		
ESG 2.0 will be characterized by stricter environmental rules		
	ESG 1.0	ESG 2.0
 Drivers	Shareholder and consumer pressure	Government policy and regulation
 Disclosures	Voluntary	Mandatory (including scope 3 emissions)
 Regulatory scrutiny	Low	High on all ESG-related marketing claims
 Corporate targets	Focus on setting targets	Focus on hitting targets
 Scope of accountability	Limited to companies’ own operations	Extended to entire value chain
 Financial impact	Limited to power and autos sectors	Emissions to impact costs in every sector
 Environmental focus	E, S and G treated equally	Greater urgency on E and emissions

Source: GlobalData

Drivers

While ESG 1.0 was driven by voluntary corporate action, spurred by pressure from activist consumers and investors, ESG 2.0 is being driven by a new wave of government policies. The EU has taken the regulatory lead, with rules introduced or in the pipeline that will price emissions, regulate the use of the terms ‘ESG’ and ‘sustainability’ in marketing materials, and make ESG reporting mandatory. The US has taken a different approach, favoring less regulation and more financial support in the form of tax breaks for clean industry (renewables plus nuclear and hydrogen). China is planning to expand its emissions trading system to more sectors, decarbonize its heavy industry, and ramp up its use of renewables.

The new policy direction is mainly motivated by the ambition to hit net zero emissions targets. But on top of this, governments are now competing for clean industry and trying to challenge China’s leadership on the production of the world’s green technologies such as solar panels and batteries, as well as the production and refinement of materials needed for energy transition such as lithium. These driving forces are leading to policy that will impact every sector, not just heavy industry, and will keep ESG near the top of the regulatory agenda over the longer term.

Disclosures

ESG reporting by corporates was voluntary under ESG 1.0 but will be mandatory under ESG 2.0. Some ESG reporting rules have already come into force. From 2024, UK companies will need to produce reports aligned with recommendations from the Task Force for Climate-Related Financial Disclosures (TCFD). These reports contain metrics such as emissions as well as more qualitative governance information such as how a company assesses its climate risks and where responsibilities for these lie with the business. The 2024 reports will cover the previous reporting year, which means that UK business need to start preparing to produce such reports immediately, if not already.

Other mandatory disclosures are being finalized throughout 2023, including in the US, the EU, and at the global level through the International Sustainability Standards Board (ISSB). Despite the efforts of global regulators to coordinate, there are likely to be different ESG reporting requirements across key jurisdictions, which will create an additional reporting burden for companies with cross-border operations. Smaller companies that fall outside the scope of these rules may also come under pressure to collect and report ESG data as larger enterprises may need to gather data from across their value chain. Other EU laws will also require additional reporting. This includes the EU’s new carbon border tax, its deforestation law, and environmental due diligence rules, which are described in more detail below.

What is common across all new reporting standards is the requirement for Scope 1, 2, and 3 emissions to be reported. Scope 1 emissions are those directly produced by a business such as a gas boiler in an office building or by burning fossil fuels for power. Scope 2 emissions are indirect and for most businesses are the emissions produced by purchased electricity. Scope 3 will be the most challenging to calculate for most businesses. These cover emissions that a business is indirectly responsible for through its suppliers and customers, and what it includes varies from sector to sector. For example, car manufacturers include emissions produced by their cars after they have been sold. Scope 3 emissions for the retailer Ikea include emissions from customer car journeys to its stores. Scope 3 is challenging for businesses because it is difficult to identify what should be counted and it often requires data to be estimated or collected from the value chain.

Companies need to prepare for mandatory disclosures by developing internal ESG expertise and systems for tracking and reporting emissions and other required ESG metrics. Software that can automate elements of ESG reporting and carbon emissions tracking across supply chains is already a growing market, with large investments from technology giants such as Salesforce and IBM.

Regulatory scrutiny

While companies could use terms like ‘green’ and ‘sustainable’ fairly liberally in marketing materials under ESG 1.0, under ESG 2.0, regulators will apply greater scrutiny to ESG-related marketing claims. In the early 2000s, BP (formerly British Petroleum) attempted to rebrand to Beyond Petroleum in an attempt to reinvent itself as a cleaner energy company. It quietly buried its new branding after two major oil spills and a lack of investment in renewables. While it may have suffered some small public relations embarrassment for its U-turn, such cases are now more likely to result in fines and other legal consequences. For companies developing ESG strategies, ESG-related marketing and communications must

come toward the end of that strategy, after the company has understood its key ESG issues and put itself on track to meeting commitments it has made, rather than at the beginning.

Regulators are coming down harder and more frequently on dubious ESG marketing claims. The current regulatory focus is on the fund management industry, with the Sustainable Finance Disclosure Regulation (SFDR) in the EU and the Sustainable Disclosure Regulation (SDR) in the UK seeking to restrict the use of the terms 'green' and 'sustainable' specifically to products that comply with clear definitions. Even without such formal rules, disclosures will add transparency, making it more difficult to exaggerate sustainability performance.

One result of a robust greenwashing clampdown is likely to be greenhushing, where companies make less noise around ESG claims for fear of greenwashing accusations. More formal regulation is likely across non-financial markets that will explicitly seek to define and prevent greenwashing. In March 2023 the EU proposed a Green Claims Directive, that would require any ESG-related advertising claims to be backed by an independent verifier.

Corporate targets

Under ESG 1.0 it was enough to set targets; ESG 2.0 will need corporates to make progress toward those targets. The vast majority of large, listed companies have set ESG-related targets. These are likely to include a target for cutting their emissions or emission intensity (their emissions per unit output or unit revenue) to zero by 2050 or earlier, with some intermediate targets in between, a common one being 2030. It is often the case that companies will have their targets verified by the Science-Based Target Initiative (SBTi). SBTi verification assesses whether a target is consistent with emissions following a pathway consistent with the Paris Agreement target of less than 2°C. SBTi verifications do not assess the plausibility of an emissions target or the strategy the company is undertaking to achieve it.

Under ESG 2.0, companies are coming under more pressure to hit targets, rather than just make them. This pressure comes from a variety of sources including shareholders and other stakeholders that will want to see progress as 2030 nears. Pressure to hit targets will also come from the regulatory push into carbon pricing, and this will be especially true for businesses operating in, or exporting to, the EU. The EU is broadening the scope of its emission trading system (ETS), which requires heavy polluters to purchase allowances for their emissions. It will include road transport, shipping, and buildings, and remove free allowances given to certain sectors. These changes are being phased in between 2023 and 2034. It means that companies that fall behind in reducing their emissions, especially those selling within or into the EU, will have higher costs than lower-emission competitors.

Scope of accountability

ESG 1.0 was for the most part focused on companies own operations, while ESG 2.0 will focus on the entire value chain. The new regulatory landscape will bring a greater focus on value chain emissions. Calculating and reporting Scope 3 emissions will require companies to collect or estimate data from their value chains, and as companies try to reduce their Scope 3 emissions, more pressure will be put on suppliers and customers to reduce their emissions.

Pressure on value chains will not stop there. As part of its stricter regime of carbon pricing, the EU is bringing in a carbon border tax known as the Carbon Border Adjustment Mechanism (CBAM). The CBAM is designed to create a level playing field between EU businesses that must pay high carbon prices under the new ETS and foreign businesses not subject to high carbon pricing. It means companies with higher emissions will find their products face a higher tax at the EU border.

The EU is set to finalize a deforestation law over the remainder of 2023 that will likely come into force in early 2025. Under the new law, companies will only be able to sell certain products in the EU if the supplier has issued a due diligence statement confirming that the product does not come from land that was deforested after 2020. The law covers cattle, cocoa, coffee, palm oil, soya, and wood as well as derivatives of these such as furniture, chocolate, and leather. As part of their due diligence statement, suppliers must provide the longitude and latitude of the land where the product was sourced. This is on top of the EU's proposed Corporate Sustainability Due Diligence Directive and EU Forced Labour Regulation, which would require firms to conduct due diligence on their supply chains to check for environmental harms and forced labor.

US and EU policy is increasingly trying to encourage the onshoring of production and securing supply chains of critical energy transition technology and materials as they try to reduce their reliance on China. The US Inflation Reduction Act

is an example of this. It provides tax credits on electric vehicle production but only if the vehicle and its components were produced mainly in the US or in countries where the US has an FTA.

The focus on value chains will make international trade more difficult for businesses exporting and importing and variety of products. Those companies that can minimize their environmental impact and report accurate, detailed environmental-related data will have the easiest time accessing international markets.

Financial impact

While ESG 1.0 had a financial impact on the automotive and power sectors, more businesses will find that ESG performance, especially emissions, will begin to directly impact their financial performance under ESG 2.0. The EU's ETS and CBAM will subject a variety of sectors to higher carbon prices and import costs. Other countries are likely to adopt similar prices as having an equivalent carbon price will make it easier to export to the EU. Companies that cannot cut their emissions will find their costs climbing.

Companies that can cut their emissions intensity by more than their competitors are likely to win more clients and contracts as firms up and down value chains try to cut their Scope 3 emissions.

The flipside is a growing green opportunity for established companies, start-ups, and others looking to deliver a low-carbon economy. The US Inflation Reduction Act, which provides tax credits for green tech, is designed to grow the US's domestic green industry and has already led to billions of dollars of announced investment in battery and electric vehicle plants. Spooked by a potential loss of industry to the US, the EU is planning its fiscal response. The global race for green industry creates opportunities for enabling technology and innovation across multiple sectors. While many firms will see ESG 2.0 as an increase in compliance costs, firms that become sector ESG leaders will have an easier time keeping those costs down and gaining market share.

Environmental focus

Under ESG 1.0, companies needed to pay equal attention to E, S, and G factors. This will change under ESG 2.0, with priority placed on environmental factors, especially emissions. Companies' social impact and their corporate governance will still be important, but government policy around emissions and environmental impact is moving at a rapid pace. Under ESG 1.0, a company that performed poorly on environmental issues might suffer some public relations embarrassment, but under ESG 2.0, poor performers will start to notice an impact on their operations and finances. Their costs are likely to be higher due to the spread of carbon pricing. It will be more difficult to trade as buyers and suppliers demand high-quality emissions data for calculating their own Scope 3 emissions. They may miss opportunities for growth by failing to invest in low-carbon goods or services or receive fines from regulators for any marketing that describes their product or service as environmentally friendly.

Timeline

More than three decades have passed since the Intergovernmental Panel on Climate Change was established. Governments have since signed landmark agreements such as the Kyoto Protocol and Paris Agreement, committing themselves to reduce GHG emissions. Corporate interest in ESG has risen steadily but took off rapidly after the 2015 Paris Agreement. Businesses have since made ESG a part of their reporting, marketing, and investment voluntarily.

ESG, especially the 'E' component, is now shifting from a voluntary regime to a mandatory one, with a host of new laws in the pipeline, including mandatory reporting, carbon pricing, and carbon import fees, as well as more state support and investment for clean energy technologies.

The ESG story

How did this theme get here, and where is it going?

1859	Irish scientist John Tyndall demonstrated that some gases blocked the escape of infrared radiation.
1896	Svante Arrhenius published the first calculation of global warming from human-caused CO ₂ emissions.
1938	British steam engineer Guy Callendar discovered global temperatures have risen 0.3C over the previous 50 years.
1953	Howard Bowen coined the term 'corporate social responsibility' in his book, <i>Social Responsibilities of the Businessman</i> .
1958	Atmospheric CO ₂ levels were measured for the first time.
1988	The Intergovernmental Panel on Climate Change (IPCC) was established.
1992	154 nations agreed on the UN Framework Convention on Climate Change.
1997	The Kyoto Protocol was adopted, committing signatories to agreed emissions reductions.
1999	The Dow Jones launched the first sustainability market index.
2000	BP underwent its ill-fated 'Beyond Petroleum' rebrand.
2004	The term 'ESG' was coined by the UN Global Compact.
2005	The EU launched ETS 1, the world's first international emissions trading system.
2009	China overtook the US as the world's largest GHG emitter.
2015	The Science Based Targets Initiative (SBTi) was founded by the CDP, UNGC, WRI, and WWF.
2015	Volkswagen was caught cheating on its emissions tests.
2016	175 countries signed the Paris Agreement. The UN launched its 17 Sustainable Development Goals (SDGs).
2016	The first global market-based carbon offset system (CORSIA) was adopted by the airline industry.
2017	The Task Force on Climate-Related Financial Disclosures (TCFD) created its first draft reporting standards.
2017	The US left the Paris Agreement.
2021	The EU's Sustainable Finance Disclosure Regulation (SFDR) came into effect.
2021	A relatively unknown investor, Engine No.1, defeated Exxon in a shareholder voting battle over director appointments.
2021	The US rejoined the Paris Agreement.
2021	The COP26 Glasgow agreement kept the Paris target of 1.5C alive.
2022	The EU SFDR and green taxonomy came into force, setting sustainability reporting requirements for fund managers.
2022	Russia invaded Ukraine, and gas prices soared to record highs in the following months.
2022	The EU announced REPowerEU.
2022	President Biden's Inflation Reduction Act was passed.
2022	DWS and Deutsche Bank offices were raided over greenwashing allegations.
2022	Goldman Sachs and BNY Mellon were fined for greenwashing.
2022	Attendees of COP27 reached an agreement on a loss and damage fund.
2023	The EU responded to the US IRA by proposing the Net Zero Industry Act.
2023	The US SEC and International Sustainability Standards Board will produce final drafts of reporting standards.
2023	The first reporting year for sectors covered by the EU CBAM.

The ESG story

How did this theme get here, and where is it going?

2024	TCFD reporting will become mandatory for large UK companies.
2024	The EU maritime sector will be brought under the EU's ETS.
2025	The EU's deforestation rules will take effect.
2025	This will be the likely first reporting year for ISSB reporting standards
2025	This will be the first CSRD reporting year for large, listed EU companies.
2026	Import fees for the world's first major carbon border tax (CBAM) will begin.
2027	EU rules on battery recycling, labeling, and passporting will take effect.
2027	Earliest start year for road transport and buildings to be covered by the EU ETS.
2030	The UK's ban on the sale of new petrol and diesel cars will take effect.
2030	Canada's target year for producing zero plastic waste.
2034	The EU CBAM and ETS 2 will be fully phased in.
2035	The EU ban on sales of internal combustion engine cars will take effect.
2035	The US government is to end its own purchases of gas-powered vehicles.
2050	The EU, UK, and US target date for achieving net zero GHG emissions.
2060	China's target date for achieving net zero GHG emissions.
2070	India's target date for achieving net zero GHG emissions.

Source: GlobalData

Trends

The main trends shaping the ESG theme over the next 12 to 24 months are shown below. We classify these trends into three categories: corporate trends, macroeconomic trends, and regulatory trends.

Corporate trends

The table below highlights the key industry trends we are seeing as we move from the ESG 1.0 era to the ESG 2.0 era.

Trend	What's happening?
Greenwashing	<p>Greenwashing is a term used to describe when companies exaggerate the environmental credentials of a product or service for marketing purposes. Recent greenwashing scandals have involved asset management companies, with Goldman Sachs, Deutsche Bank's asset manager DWS, and BNY Mellon found to have exaggerated their green credentials. One of the highest profile incidences of greenwashing occurred in 2015 when Volkswagen, at the time the world's largest car maker by market cap, was caught cheating emissions tests.</p> <p>With disclosures making companies more transparent and regulators putting ESG higher on the agenda, marketing claims will likely come under more regulatory and legal scrutiny. As a consequence, incidences of greenwashing should fall.</p>
Greenhushing	<p>With regulators clamping down on greenwashing, more companies may choose to stay quiet on their ESG targets, data, and marketing. Any form of marketing that claims a product or service is environmentally friendly could fall foul of regulators. In the past, this usually meant some level of public relations embarrassment, but fines are becoming more common. Companies will likely tighten control over their marketing departments and how they use terms like sustainable and green.</p>
Shareholder pressure	<p>The last five years have seen increased shareholder pressure on boardrooms around ESG issues. The most famous example is Engine No. 1's victory in a campaign to appoint directors with renewable energy experience to Exxon's board, but ESG-related proposals from shareholders have been rising more broadly. Research by The Conference Board, a US non-profit, found that Russell 3000 companies received 471 proposals on environmental and social policy in 2022, and this figure has been climbing every year since 2018. Pressure is also being exerted through other, less formal engagements, like meetings.</p> <p>In the US, political pushback against asset managers promoting ESG may lead to slightly reduced pressure from some asset managers. However, no such pushback has occurred, at least to the same extent, against asset managers across the rest of the world. It is likely therefore that as more sustainable finance regulation comes in, shareholders will continue to demand more ESG action from their portfolio companies.</p>

Trend	What's happening?
ESG ratings	<p>After the term ESG was first coined in the 2004 UN compact paper <i>Who Cares Wins</i>, an industry built around providing ESG ratings emerged. The aim was to help investors judge the ESG quality of a portfolio company in the absence of government regulation and international consensus. Companies often use ratings to benchmark themselves against competitors, and it is not uncommon to see remuneration targets include reference to ESG ratings. As competing frameworks and indices emerged in the 2010s, ratings were criticized as inflated, subjective, and for underweighting emissions. Due to the lack of any global benchmark, ESG ratings from different agencies tend to vary far more than they do for more traditional credit ratings, which has led to criticism of the industry as a whole.</p> <p>The introduction of ESG standards should raise the quality of ESG ratings by improving the availability of standardized data. A challenge for the users and creators of ESG ratings will be the increasing financial importance of the E part of ESG as policies like carbon pricing become more widely adopted. Rating providers typically give roughly equal weight to E, S, and G factors. Within the E component, emissions only play a small role, and most rating providers currently do not include Scope 3 emissions. Unless ESG rating providers can give greater weight to emissions, their ratings are unlikely to be good indicators of future financial performance.</p>
Sustainable finance	<p>A growing number of organizations are using sustainable finance to decarbonize their business or improve their social impact. There are two types of sustainable finance products: 'use of proceeds' and 'linked'. Use of proceeds bonds, which includes green, social, and sustainability bonds and loans, require proceeds to be invested in projects that have a positive sustainable impact. Sustainability-linked bonds and loans do not need to be invested in specific projects but have an interest rate that rises if the issuer misses a pre-defined sustainability target.</p> <p>Issuance of green bonds, by far the most popular type of sustainable bond to issue, grew from \$29 billion in Q1 2019 to a peak of \$389 billion in Q2 2022. Issuance then began to decline, reaching \$62 billion in Q1 2023 as interest rates rose, which made it more expensive for corporates to borrow. Issuance is likely to rebound from its recent dip in the coming quarters as more companies face more pressure to decarbonize their operations.</p> <p>One of the leading corporate issuers of sustainable bonds has been ENEL, the Italian energy company, which has used green bond proceeds to develop renewable energy plants.</p>
Science-based targets	<p>Many companies choose to have their emissions reduction targets accredited by the Science-Based Targets Initiative (SBTi), an organization that validates corporate emissions targets. A target is considered science-based if it is in line with the Paris Agreement goal of limiting global warming to well-below 2°C. For most sectors, the judgment is based on carbon budgets; the SBTi determines how much a sector needs to cut its emissions, then applies this figure to individual firms within the sector.</p> <p>An SBTi-approved target can show stakeholders that a target is ambitious. However, it is not a judgment on a target's credibility or a company's ability to meet its target, nor is it a judgment on any strategy the company has announced to meet its target. In 2022, the SBTi was itself accused by some climate researchers of providing several consumer brands with a platform for greenwashing and for failing to use rigorous standards for evaluation.</p> <p>Despite this emerging criticism of the SBTi, an increasing number of companies are likely to use SBTi to validate their targets. Under ESG 2.0 more companies will need to set emissions targets, and SBTi approval is one of the few ways companies can show that their targets are in line with industry standards.</p>

Trend	What's happening?
Carbon credits, permits, or allowances	<p>Several countries have introduced carbon markets to incentivize companies to cut their emissions. In so-called compliance carbon markets, which are run by governments, a carbon credit, allowance, or permit typically represents one ton of CO₂ emissions equivalent (CO₂e) that a company is permitted to emit in a given year. Equivalent means other GHGs are included and weighted by their warming effect. For example, one ton of methane is considered to be equivalent to 25 tons of CO₂e because of its greater warming potential.</p> <p>Companies buy, receive, and trade these permits on emissions trading systems (ETS) also known as cap and trade schemes, and the majority of the proceeds flow back to the regulators. Well-known examples of these markets are the EU ETS and California's cap-and-trade system. In July 2021, China launched the world's biggest ETS nationwide for its power sector.</p> <p>Many ETS schemes are limited in their impact by the award of free allowances or credits to companies, or by being limited to a small number of sectors. The EU is currently expanding its ETS to include more sectors and is phasing out the free allowances it grants to heavy industry fully by 2034. More countries are likely to, introduce ETS, expand current ETS, and reduce the amount of available carbon allowances within those schemes as they seek to achieve their emissions targets.</p> <p>Having an ETS is also likely to make it easier to trade with other countries that have an ETS as policies such as the EU's CBAM, which aims to protect domestic industry from lower foreign carbon costs, become more common.</p>
Carbon offsets	<p>A carbon offset is a reduction or removal of emissions of carbon dioxide or other greenhouse gases made to compensate for emissions made elsewhere. Companies purchase carbon offsets to reduce their net emissions when they cannot adequately cut emissions from their direct activity. The carbon offset market is largely unregulated</p> <p>Popular types of carbon offset projects include tree planting, other forestry and land use projects, renewable energy, and methane capture.</p> <p>Companies need to be careful when using offsets as reporting standards do not allow carbon offsets to be incorporated into emissions reporting; they must be reported separately. This means that any targets specifying Scope 1, 2, or 3 emissions cannot be hit using offsets, but a net-zero target can be. Companies must also check whether offsets they purchase are accepted under any ETS they are covered by.</p> <p>A growing backlash against using offsets is underway. An investigation published in January 2023 by several media groups claimed that 90 percent of the rainforest offsets verified by Verra, a leading offset verifier, did not remove CO₂ from the atmosphere. Companies that use carbon offsets may be better off investing in technology-based offsets such as renewable energy projects and CO₂ removal, where removed or avoided emissions are more easily measured than in nature-based offsets, where a greater level of estimation is required.</p> <p>While offsets have begun to develop a negative reputation, demand for them will grow as companies seek to achieve net zero targets. Offsets will likely shift toward projects that provide more reliable data on their emissions impact. This includes removals, where the results tend to be easier to measure and rely less on estimation and assumptions.</p>

Trend	What's happening?
Circular economy	<p>Circular economy principles can help companies minimize their products' environmental and social impacts. The goal of circular production is to keep resources and materials in play for longer, thereby mitigating harm from resource extraction and disposal.</p> <p>Circular economy solutions are currently being implemented to some extent in every sector. Retailers have a long history of improving the circularity of packaging, using materials that can be recycled or reused. Holcim, one of the world's largest construction materials producers, has put circularity at the core of its sustainability strategy. It aims to use less carbon-intensive materials in its production process and use more recycled materials.</p> <p>More circular economy-inspired regulation is likely too. The EU has introduced circular economy regulations for batteries, including recycling and material recovery targets. This is on top of its broader Circular Economy Action Plan, which sets the aim of making the EU economy more circular.</p> <p>Companies can consider circular economy principles as solutions to some of the ESG-related challenges they face. To make production more circular, companies usually assess the impact of a product over its entire lifecycle. As such, lifecycle modeling is likely to become more popular and will become a key part of many companies' ESG strategies.</p> <p>See The Circular Economy.</p>
Source: GlobalData	

Macroeconomic trends

The table below highlights the key macroeconomic trends we are seeing as we move from the ESG 1.0 era to the ESG 2.0 era.

Trend	What's happening?
Rising interest rates and high inflation	<p>Between March 2022 and May 2023, the US Federal Reserve has raised interest rates from a target range of 0–0.25% to 5–5.25%, the highest since 2007. Other central banks have followed suit, with the European Central Bank raising its deposit rate from -0.5% to 3.25%, and the Bank of England raising its policy rate from 0.1% to 4.5%. This has been to combat rising inflation, which has surpassed or neared 10% in the US, UK, and EU, after three decades of remaining close to 2%.</p> <p>Rising interest rates and inflation have acted as short-term hindrances to corporate decarbonization. They have pushed ESG down the boardroom agenda and made capital expenditure prohibitively expensive. However, the causes of inflation, such as high fossil fuel prices, have given policymakers extra urgency in terms of renewables development and energy security on a national level. ESG can therefore be expected to rebound back up the board room agenda fairly soon, if not already.</p>
Paris and Glasgow agreements	<p>The Paris Agreement is an international treaty on climate change adopted in 2015 that came into force in November 2016. Nearly 200 signatories including the US, China, and India committed to keeping the rise in mean global temperature to well below 2°C above pre-industrial levels”, preferably limiting it to 1.5°C. The IPCC has estimated that a 1.5-degree target is consistent with an emissions pathway that sees GHG emissions peaking before 2025, followed by cuts in global GHG emissions by 43% by 2030 (from 2019 levels) and net zero emissions by 2050.</p> <p>The Glasgow Agreement in 2021 reiterated countries’ commitment to the Paris Agreement and included a commitment to phase down unabated coal use and inefficient fossil fuel subsidies. The new wave of state investment in clean energy, especially in the US and China, as well as the regulatory pipeline in the EU, shows that governments are beginning to act on these commitments. It is one reason to expect further regulation and investment aimed at reducing emissions beyond what has already been announced.</p>
Critical minerals	<p>In 2022 the US spearheaded several initiatives to secure access to minerals and metals critical for the green transition. These include lithium, cobalt, and nickel among others. The Partnership for Global Infrastructure and Investment, a G7 initiative, has vowed to put \$600 billion between 2023 and 2028 toward critical infrastructure, focusing on critical material supply chains. The Indo-Pacific Economic Framework and the Mineral Security Partnership, which include Australia, Germany, France, the UK, and Japan, are aimed at securing critical mineral supplies.</p> <p>In March 2023, the EU proposed the Critical Raw Materials Act to ensure a domestic supply of critical minerals such as lithium and rare earth. The policy focus on critical minerals is likely to result in more financial incentives being provided for companies that can recycle or produce them domestically, as well as tighter restrictions on how such minerals can be disposed of. At the same time, governments are likely to introduce or alter regulations that make mining of such materials easier.</p> <p>We will shortly publish a landmark thematic report on Critical Minerals.</p>

Trend	What's happening?
China's green industry policy	<p>China is a global leader in the production of several green technologies including batteries and solar cells. It produces 78% of batteries for electric vehicles and 85% of all solar cells, according to the International Energy Agency (IEA). It also leads global market shares in green technology supply chains, refining 63% of the world's cobalt and 60% of the world's lithium.</p> <p>GlobalData's Patent Analytics database shows that Chinese companies have filed more renewable energy patents than any other country every year since 2007. In 2022, Chinese companies filed 102,000 renewable energy-related patents. The next highest was the US with 6,700.</p> <p>China's green technology industry benefited from the country's export-led economic growth model, in which it offered low labor costs, low trade barriers, and kept its currency undervalued to boost domestic manufacturing. China's state-owned banks have also supported the country's energy sector more broadly through cheap financing. It began to undertake these policies in the 1990s as other countries were beginning to increase their demand for renewable energy.</p> <p>China will continue to dominate green technology and industry over the near future and its leadership will further encourage other economies to try and support their own green industries. Chinese companies are likely to establish EU and US operations as these regions incentivize domestic production of green technologies.</p>
US green industry policy	<p>The US Inflation Reduction Act (IRA) announced in 2022, is an industrial policy that aims to support domestic production of solar photovoltaics, wind turbines, and batteries, as well as the domestic refinement of battery materials like lithium.</p> <p>The main mechanism included in the IRA is tax breaks on domestically produced goods. The total size of the IRA depends on uptake, but the official estimates published when the policy was announced put the total cost at \$391 billion. Trade partners complained that the IRA put their exports to the US at a disadvantage, and so the US has expanded its requirements for domestic production to any country with which the US has a free trade agreement. Since the IRA was announced, several electric vehicle manufacturers and renewable energy firms have announced plans for more investment in the US. Total announced investment had reached \$89.5 billion by January 2023, with just over 100,000 jobs created, according to Climate Power, a climate-focused communications firm.</p> <p>Climate policy has become a key area of contention in US politics, and it looks likely that the 2024 presidential election will have a significant bearing on the likelihood of future US funding for green industry.</p>

Trend	What's happening?
EU green industry policy	<p>The EU's green industrial policy has focused on regulating industry, carbon pricing, and trying to encourage development through easier planning approvals and access to private sector finance. It has put some money into green industry, but mainly in the form of loans.</p> <p>The EU's first major climate policy announcement was the 2019 European Green Deal, its plan to make the bloc carbon neutral by 2050. The plan included goals for a variety of sectors including construction, power, and agriculture as well as plans to review current climate legislation such as the EU ETS to ensure current laws were in line with new targets.</p> <p>The Fit for 55 package was published in 2021 and introduced a raft of new rules and ambitions to meet the objectives of the Green Deal. The core of it was the expansion of the ETS to cover more sectors and the introduction of a carbon border tax called the Carbon Border Adjustment Mechanism.</p> <p>REPowerEU was introduced in 2022 in response to Russia's invasion of Ukraine and aimed to cut the EU's reliance on Russian fossil fuels. It aimed to boost renewables development by making the approval process for projects easier, as well as EUR300 billion (\$329 billion) in loans. In response to the US IRA, the EU announced its Green Deal Industrial Plan in March 2023, which makes state aid rules more flexible and, like REPowerEU, aims to speed up approvals for renewables projects.</p> <p>The EU is likely to focus on implementing the rules it has already announced. In May 2023, French President Emmanuel Macron said the bloc needs a break from further climate-focused rulemaking to give businesses time to digest what has already been approved and which will come into force over the coming decade.</p>
Source: GlobalData	

Regulatory trends

The table below highlights the key regulatory trends we are seeing as we move from the ESG 1.0 era to the ESG 2.0 era.

Trend	What's happening?
Carbon pricing	<p>Many countries and jurisdictions, including the EU, China, and Canada, plus more than a dozen US states, have already adopted carbon emissions trading based on an underlying carbon price. However, with a few exceptions, current ETS tend to lack teeth, with carbon prices set low in the case of China or with free allowances for high emitters like heavy industry in Europe (e.g., steelmakers, chemicals producers). The EU's ETS is being expanded to cover road transport, building, and shipping, and free allowances are being phased out between 2026 and 2034.</p> <p>According to the International Carbon Action Partnership, there are currently 28 emissions trading systems in place globally, with 20 more under development or consideration. With both the EU and China expanding the scope of their respective ETS, more countries are likely to adopt an ETS or expand their current one in the future.</p> <p>The spread will be fueled by the EU's CBAM, which taxes imports on their embedded emissions, based on the differences between the carbon price in the EU and the imports' home country. Countries with ETS will find it easier to trade with the EU and are more likely to introduce their own CBAM as their own ETS grow. This creates network effects, where the incentive to adopt an ETS and CBAM grows as more regions adopt them.</p>
Carbon border taxes	<p>As the EU phases in its broader, more stringent emissions trading system, it will also introduce an import carbon tax called the carbon border adjustment mechanism (CBAM).</p> <p>Under the CBAM, EU importers will need to buy carbon certificates corresponding to the carbon price that would have been paid had the imported goods been produced under the EU's ETS. Where a non-EU exporter can show that they have already paid for the carbon emitted, that cost can be deducted for the EU importer. Exporters already subject to an equivalent carbon pricing regime would not be charged a fee. In this way, it encourages other countries to adopt carbon pricing.</p> <p>The CBAM will be phased in gradually over nine years starting in 2026. US and UK policymakers have begun discussing whether they would adopt a similar carbon import tax in response to the EU's measure. South Africa and India have complained that the policy discriminates against their exporters and may challenge the policy through the World Trade Organization (WTO).</p>

Trend	What's happening?
Mandatory disclosures	<p>Three sets of mandatory ESG reporting standards are being finalized in 2023. These are the International Sustainability Standards Board's (ISSB) sustainability standards, which are likely to be adopted in the UK and Hong Kong, the EU's European Sustainability Reporting Standards, which will be implemented as part of the Corporate Sustainability Reporting Directive, and the US Security and Exchange Commission's climate reporting standards, which would apply to listed companies.</p> <p>There is an expectation among investors that ISSB standards will become the global benchmark for ESG reporting. Financial regulators in China, the UK, as well as the Hong Kong Stock Exchange, have said they are considering future adoption of ISSB standards. The IFRS Foundation, which manages the ISSB, has said it plans to open an office in Beijing. This will allow China to exert influence over the setting of future sustainability standards. China has complained that the international standards currently planned are too onerous for developing countries and that countries in an earlier stage of economic development should be exempt from certain requirements such as Scope 3 emissions reporting.</p> <p>The UK has already made Taskforce for Climate-Related Financial Disclosures (TCFD) recommendations mandatory for pension funds and all large businesses. TCFD combines qualitative and quantitative reporting, with the qualitative elements focusing on how an institution manages its climate risks internally and quantitative elements covering emissions and other material metrics.</p> <p>Companies will need to keep up to date with what standards apply to them and what data they will need to report. They will need to upgrade internal data systems and data governance so they can produce emissions data, and other ESG-related data, that meets the standards of auditors and regulators.</p>
Supply chain due diligence	<p>Regulators have started to pressure companies to be more proactive on ESG by conducting due diligence across their wider supply chains.</p> <p>In February 2022, EU regulators proposed the Corporate Sustainability Due Diligence Directive, which would require companies to conduct environmental and human rights due diligence on their subsidiaries and value chains both in and outside the EU.</p> <p>In September 2022, the EU proposed its Forced Labour Regulation, which would ban products made using forced labor, including child labor, from the EU market. The ban covers the entire supply chain and companies that import such goods can face fines and have their products prohibited from the EU market. The EU's deforestation law come into force in early 2025 and requires companies selling certain products in the EU to produce a due diligence statement showing the product does not come from deforested land.</p> <p>The US Uyghur Forced Labor Prevention Act was brought into law in June 2022 and gave US regulators greater powers to request information from companies and prevent sales of goods made with forced labor. Between June 2022 and March 2023, \$30 million of footwear and textile shipments to the US were stopped under this act, according to US Customs and Border Protection. In April 2023, US policymakers wrote to several auto manufacturers including Ford, Honda, General Motors, Mercedes-Benz, Toyota, Tesla, and Volkswagen to ask how they were overseeing their Chinese supply chains.</p> <p>Companies will need to take an active approach to managing supply chain ESG risks by establishing their own processes for conducting due diligence and scrutinizing current or potential suppliers. At the same time, suppliers that can be transparent and successfully manage and mitigate their ESG problems are more likely to win business.</p>
Source: GlobalData	

Global Policy Overview

ESG 2.0 will be driven primarily by government policy rather than voluntary corporate action. Major regions are taking different approaches to the implementation of ESG-related policy. The EU's approach depends largely on carbon pricing and the development of its ETS. It is also creating a large number of regulations that will impact a variety of both EU and non-EU firms. Most of the funding made available by the EU for investments in renewable energy is in the form of loans.

In contrast, the US has taken a spend-and-invest approach. The US regulatory approach is light overall and will probably remain so; there has already been political pushback against mandatory disclosures, so more onerous regulations are likely to be difficult politically. The main US policy is the Inflation Reduction Act (IRA), which provides tax credits for several carbon-reducing technologies such as electric vehicles, batteries, renewables, and nuclear power.

The IRA aims to cut US emissions and boost US industry. This is in response to China, which has come to dominate the production of green technologies such as batteries and solar panels. The APAC region more broadly has implemented a variety of ETS schemes and mandatory disclosures. The main challenge for APAC is in responding to new US and EU policy initiatives given its role in global supply chains.

The EU leads on ESG regulation

The EU is taking the most comprehensive approach to ESG regulation. Most of its regulatory pipeline is aimed at decarbonization, but its disclosures and due diligence requirements will require businesses to look at their social impacts. Its main plan is the EU Green Deal, announced in 2019, which set out how the bloc intended to reach net zero emissions by 2050. The first set of policies to realize the Green Deal was the Fit for 55 package, which was announced in 2021 and passed in 2023. Fit for 55 includes the EU's core policy measure for reducing emissions: its emissions trading system (ETS), an emissions cap and trade system, which it plans to expand and make more costly for polluting companies.

Following Russia's invasion of Ukraine in February 2022, the EU announced REPowerEU, a package of policies aimed at speeding up the development of EU renewables and weaning the continent off Russian fossil fuels. Then, in early 2023, it announced the Green Deal Industrial Plan, which aimed to secure the future of the EU green industry in response to the US Inflation Reduction Act.

The EU's main ESG policy plans and packages

Policy	Date	Overview
Green deal	Announced 2019	<p>The green deal sets out the EU's high-level plan for achieving climate neutrality by 2050. It includes a plan to review every EU law and regulation to align them with the EU's new climate ambition.</p> <p>The plan highlighted eight focus areas: biodiversity, sustainable food systems, sustainable agriculture, clean energy, sustainable industry, building and renovating, sustainable mobility, eliminating pollution, and climate action</p>
Fit for 55	Announced 2021	<p>Fit for 55 is a comprehensive policy package that affects nearly all sectors. It aims to slash GHG emissions by at least 55% from 1990 levels by 2030.</p> <p>The Emissions Trading System (ETS) is being extended to more sectors, such as shipping, road transport, and buildings. The Carbon Border Adjustment Mechanism (CBAM) will apply a tax to emissions of imported goods in ETS sectors where they are not taxed already.</p> <p>Fit for 55 sets new national emissions targets for member states.</p>

The EU's main ESG policy plans and packages		
Policy	Date	Overview
REPowerEU	Announced 2022	<p>The plan aims to speed up the approval process for renewables and hydrogen projects. It includes EU-coordinated energy demand reduction plans for member states.</p> <p>It aims to ensure raw materials access for EU industry by supporting the domestic supply of materials needed for the energy transition.</p>
Green Deal Industrial Plan	Announced 2023	<p>The Green Deal Industrial Plan is a response to the US Inflation Reduction Act. It includes a target that states that 40% of clean energy technologies used in the EU will be manufactured in the EU by 2030.</p> <p>The Plan has four pillars to boost green industry:</p> <ul style="list-style-type: none"> ▪ Simplified regulatory environment ▪ Speeding up access to finance ▪ Enhancing skills ▪ Open trade for resilient supply chains <p>The plan includes the Net Zero Industry Act and Critical Raw Materials Act.</p>

Source: GlobalData

A new era for carbon pricing

The core of the EU's emissions reduction strategy is carbon pricing. The EU implements carbon pricing through its ETS, in which companies in certain sectors must purchase annual allowances for their emissions, with allowances also traded in a secondary market. The ETS was established in 2005 to cover high-emission sectors such as power, steel, and cement. More energy-intensive industries were added during the 2010s including aviation and industrial sectors like glass, ceramics, pulp, paper, and chemicals. All sectors are currently granted free allowances depending on their risk of 'carbon leakage', where EU-made goods are substituted for cheaper imports from producers that do not pay for emissions.

Over the next decade, the ETS is being reformed to incentivize further emissions reduction across more sectors. Free allowances are to be phased out being gradually phased between 2026 and 2034 and allowances can be cut for industrial companies by 20% if they do not have energy audits or are not implementing decarbonization measures.

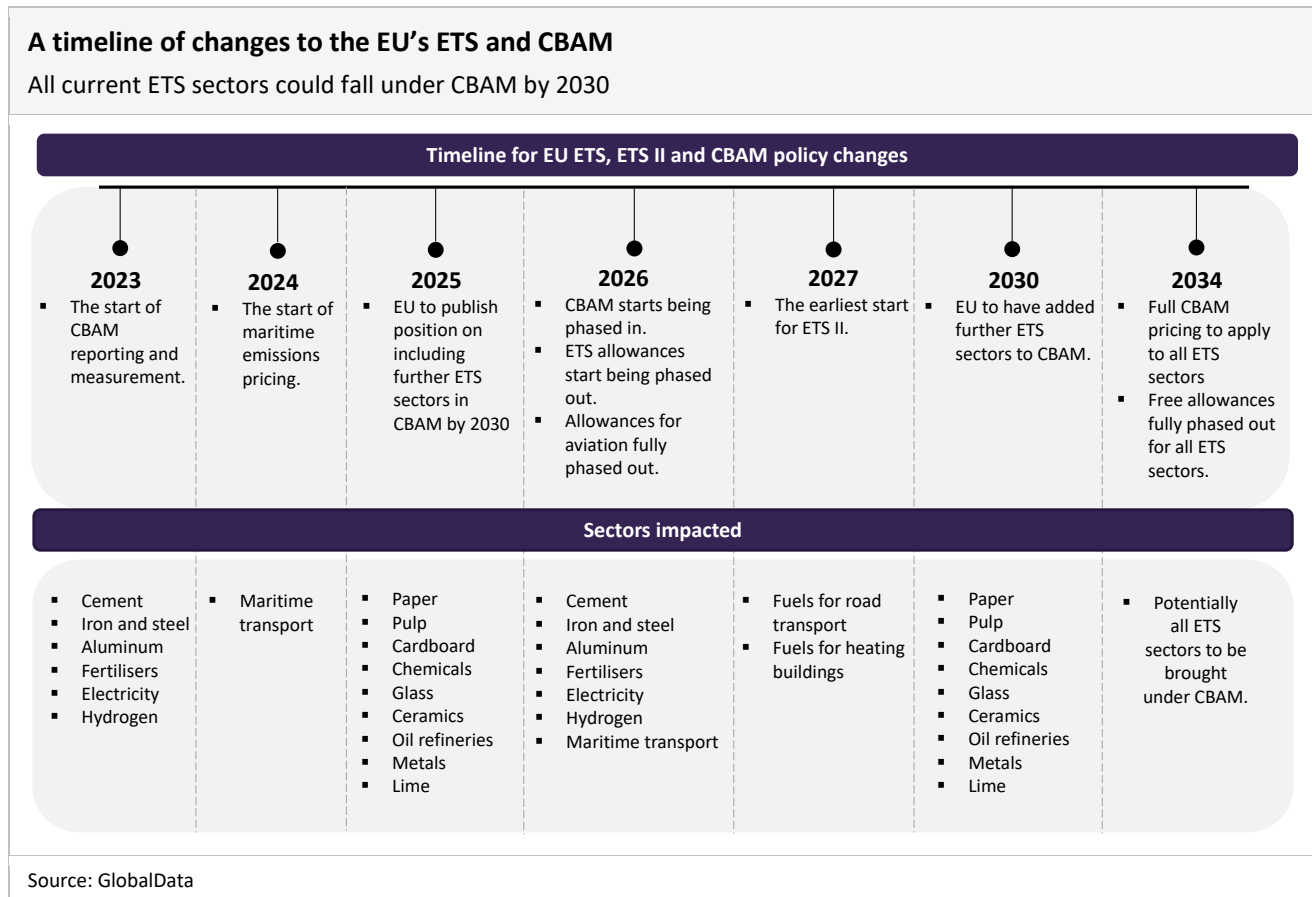
Maritime transport is to be added to the current ETS in 2024. A new ETS system, called ETS II, will be established to cover fuels used in road transport and heating buildings. ETS II will be operational from 2027 at the earliest. To stop carbon leakage, where EU buyers purchase from non-EU suppliers not subject to emission pricing, the EU will phase in the CBAM at the EU border. The CBAM requires EU importers to declare each year the number of goods imported into the EU in the previous year and their embedded emissions, which covers the Scope 1 and 2 emissions of imported goods. Importers then pay the difference between the EU's carbon price and the carbon price, if one exists, of any ETS the imported goods already came under.

A huge number of businesses will be impacted by the changes being made to the ETS and the introduction of the CBAM. The main direct impact will be higher costs for emissions-intensive sectors. These will then be passed on, at least partially, as higher prices to every sector in the EU. Companies that can reduce their emissions as well as their supply chain emissions will gain a cost advantage when selling within the EU.

Non-EU businesses need to be aware of whether their sector is covered by the ETS, as their exports will likely be impacted by the CBAM. Such businesses can expect EU buyers to demand information from them regarding their embedded emissions. Countries where an ETS is already in place will have an advantage, as the data reporting systems will already

be in place. Where a country already has an ETS, the CBAM will only charge the difference in carbon price between the EU ETS and non-EU ETS. This will incentivize other countries to adopt their own ETS and raise their carbon price to match the EU's.

Policymakers in other countries such as the UK, the US, and Canada are currently discussing whether to introduce something similar to the CBAM. China, meanwhile is planning to expand its ETS. As more countries adopt ETS and CBAM-style policies, the incentive for other countries to adopt such measures grows. As such, carbon pricing is likely to impact more sectors in more geographies over the coming decade.



Several other EU rules are in the pipeline

On top of carbon pricing, the EU is introducing several other rules and regulations over the next several years. Some of these rules, such as new mandatory ESG reporting and deforestation due diligence, have already been passed and will come into force in the next two years. Other rules are still in the regulatory pipeline.

The list of new rules coming in will increase compliance costs for businesses in every sector, and firms will need to onboard more ESG expertise. The rules will also create a market environment where firms that cannot successfully navigate their ESG challenges face larger risks in terms of financial penalties, whether it be for greenwashing or sourcing products from deforested land.

Companies need to prepare for a long list of upcoming ESG-related regulations		
Policy	Date	Overview
Corporate Sustainability Reporting Directive (CSRD)	First reporting due 2025	<p>CSRD implements the EU's new, comprehensive sustainability reporting standards and makes them mandatory for an estimated 49,000 companies. It applies to most listed companies, large unlisted companies, and foreign companies with large EU operations.</p> <p>It will be phased in over the next several years, starting in 2024 (with the first annual reports due in 2025).</p>
Deforestation-free supply chains	In effect from early 2025	<p>Companies will have to conduct due diligence, with geolocation or traceability data, if they place on the EU market, or export to it: palm oil, cattle, soy, coffee, cocoa, timber, and rubber, as well as derived products (such as beef, furniture, or chocolate).</p> <p>Suppliers must issue a due diligence statement confirming the product does not come from deforested land and has not led to forest degradation after 31 December 2020.</p>
Sustainable finance and ECB regulation	Fully implemented by end-2024	<p>Asset managers must report according to the EU's Green Taxonomy and Sustainable Finance Disclosure Regulation (SFDR).</p> <p>Banks must include climate and environmental risks in their governance, strategy, and risk management frameworks by year-end 2023. Banks must achieve full alignment with the European Central Bank's (ECB) specific institution expectations by the end of 2024, including stress testing and capital adequacy for climate risks.</p> <p>EU banks must complete full climate and environmental risk assessments by EU banks by March 2023 at the latest.</p>
Corporate Sustainability Due Diligence Directive and EU Forced Labour Regulation	Proposed 2022	<p>This regulation prohibits products made using forced labor, including child labor, from being sold on the EU market. Companies will need to provide disclosures on environmental and human rights factors across the value chain.</p>
Batteries regulation	Expected to take effect in H2 2023	<p>Battery producers will face stronger sustainability, performance, and labeling requirements. Producers must have a due diligence policy to address social and environmental risks.</p> <p>The regulation introduces more stringent targets for waste collection, recycling efficiency, and material recovery. Portable batteries in appliances will be easier to replace.</p>

Companies need to prepare for a long list of upcoming ESG-related regulations		
Policy	Date	Overview
Green claims directive	Proposed 2023	Corporate sustainability claims will need to be independently verified. Environmental labels will be regulated, and new labeling schemes will need approval.

Source: GlobalData

While the EU’s new regulatory push will impact virtually every sector within the EU, it will also impact certain key sectors outside the EU. Non-EU businesses that export to the EU or which have significant operations within the EU need to be aware of upcoming regulations they may need to comply with. The EU’s new reporting rules, CSRD, will apply to non-EU companies with an EU subsidiary that falls under the scope of CSRD. In these cases, the non-EU parent company will need to report, not just the subsidiary.

The EU’s new laws on deforestation, forced labor, and supply chain diligence will mean that non-EU firms can expect to have to submit more information to meet the requirements of EU regulators and customers. In another example of value chain challenges, Indonesia and Malaysia, the world’s largest palm oil producers, aired complaints in early 2023 in response to the EU’s new deforestation laws, which place costly geo-localization requirements on exporters of certain products. Exporters of palm oil to the EU will need to provide a due diligence statement that includes the longitude and latitude coordinates of the area where palm oil was produced, to show it has not been deforested.

EU rules will have a significant impact across a variety of EU and non-EU companies									
Region	Companies affected	CSRD	ECB regulation	CBAM	Deforestation-free supply chains	Batteries regulation	Shipping ETS	Forced Labour Regulation	Supply chain due diligence
The EU	Financial services	●	●						
	Mining	●				●	●	●	●
	Heavy industry	●		●	●	●	●	●	●
	Listed companies	●	●						●
Non-EU firms exporting to the EU or with EU operations	Select commodities	●		●	●	●	●	●	●
	Heavy industry	●		●	●	●	●	●	●
	Agriculture and forestry	●			●		●	●	●

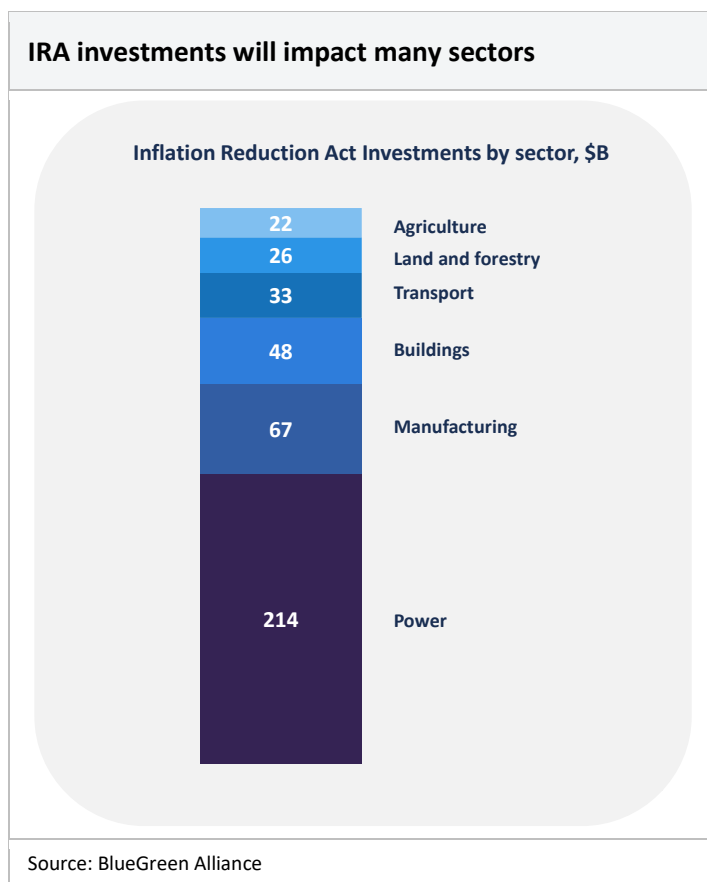
● Denotes risks to a majority of firms in this category

Source: GlobalData

The US leads on government subsidies for clean energy

While Europe’s approach to reducing emissions has focused on carbon pricing and new regulations, the US has opted to focus on subsidies for domestic industry and technologies. The US Inflation Reduction Act (IRA) will provide an estimated \$369 billion in subsidies, according to official estimates, mainly in the form of tax credits for electric vehicles, nuclear power, renewables, hydrogen production, sustainable aviation fuel, and home heating improvements. It is by far the largest investment by the US in renewable energy. The total amount invested depends on the uptake and could climb; the Electric Power Research Institute, a US non-profit, has estimated that the cost of the tax credits alone could rise to \$780 billion.

While the IRA contains provisions for healthcare access, from the corporate perspective, it is largely focused on environmental impact rather than social impact. The government is also investing \$108 billion into public transport through the 2021 Bipartisan Infrastructure Deal, a spending package aimed at improving a broad array of US infrastructure.

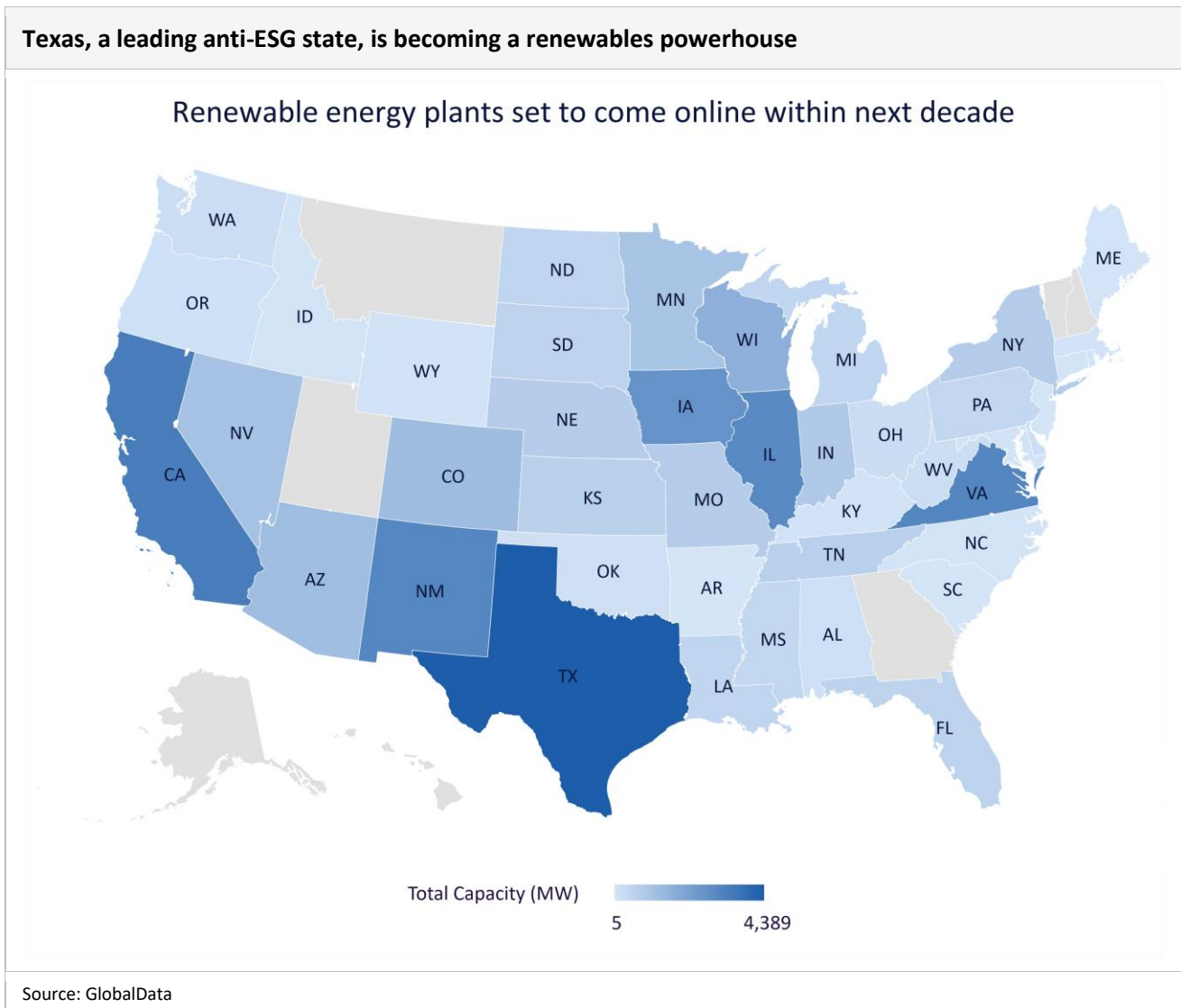


The announcement has already led to a raft of investments from EV manufacturers establishing new plants in North America. Some of the largest projects announced so far are a \$4 billion Panasonic plant in Kansas that will produce batteries for Tesla vehicles. In addition, Ford Motors has begun construction on a \$5.6 billion factory for EVs and batteries.

Trading partners without formal free trade agreements with the US complained about the rules because tax credits only apply to EVs with final assembly in North America. For the full tax credit to apply, the batteries must be at least 50% North American-made (by the value of components, rising to 100% by 2029), and the critical minerals used within those batteries must be extracted or processed in a country that has a free trade agreement with the US. Following this pushback, the Biden administration issued EV tax credit guidance in March 2023 that relaxes these rules to allow informal free trade agreements struck between the executive branch and US allies to qualify for inclusion.

In March 2023, the administration struck a deal of this type with Japan on critical minerals; and (at the time of writing) the administration is negotiating a similar deal with the EU. Still, future rule changes are possible in the wake of bipartisan criticism of Biden for adopting a liberal interpretation of the IRA rules.

The US Department of Energy believes that the IRA will help achieve a 40% reduction in US emissions by 2030 (compared with 2005 levels). The US’s current target is for a 50–52% reduction in emissions by 2030. This means more regulation on emissions can be expected. However, this will also depend on the outcome of the 2024 US presidential election. ESG has become politically divisive in the US, and a Republican victory would result in less chance of further climate policies.



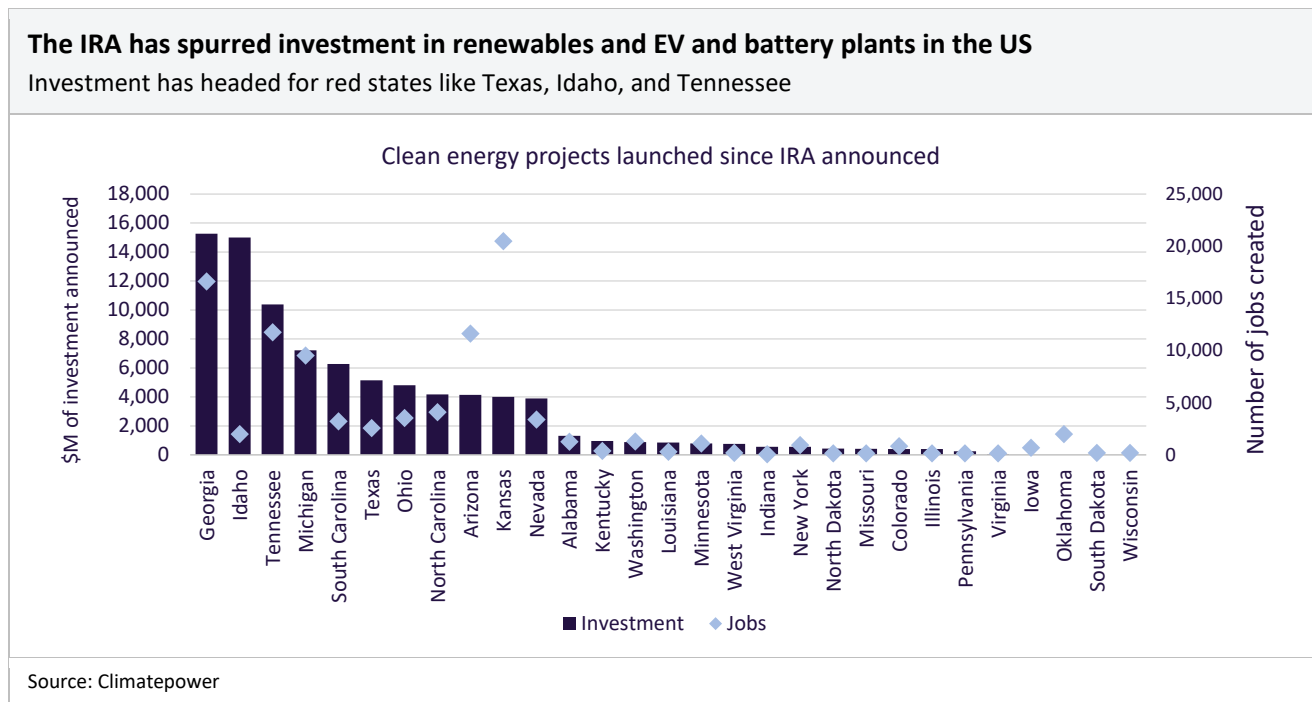
The US IRA has political ramifications domestically and globally. On a domestic level, some of the largest beneficiaries in terms of jobs and investment will be so-called red states – those that typically vote Republican. This includes Texas, the US’s top wind energy producer and a leading destination for US renewable investment. Once states begin to see money and jobs coming from the IRA, it may tip the scales of the ESG debate, make anti-ESG states more amenable to further climate policies, and perhaps prevent further restrictions on ESG investing.

On an international level, the IRA has generated a response from the EU in the form of the EU’s Green Deal Industrial Plan, announced in March 2023, which aims to stop investment in the green industry from leaving the EU and heading to the US. The US approach to decarbonization creates several opportunities for businesses developing or implementing industrial technology that cuts emissions. Companies operating in the clean technology sector, whether it is EVs, batteries for EVs, the minerals needed for batteries, hydrogen, nuclear power, renewable energy, or their respective supply chains, will need to stay on top of regulatory developments in the EU and US, as more opportunities are likely to arise as the regions attempt to decarbonize and support their green (and clean) industrial sectors.

The IRA will be the main ESG-related policy introduced by the US, but two others may have a broad impact across multiple sectors. All listed companies will need to keep an eye on the climate-related disclosure rules that are being finalized by the Securities and Exchange Commission (SEC). The SEC is planning to produce a final draft of the rules around the middle

of 2023. These rules would require companies to disclose Scope 1, 2, and 3 emissions, as well as companies' approach to governance of climate risks and opportunities.

In terms of social impact, the US Uyghur Forced Labor Prevention Act was brought into law in June 2022 and gave US regulators greater powers to request information from companies and prevent sales of goods made with forced labor. The act aims to prevent any imports of goods that have been made wholly or partly in the Xinjiang region of China. Between June 2022 and March 2023, \$30 million of footwear and textile shipments to the US were stopped under this act, according to US Customs and Border Protection. In April 2023, US policymakers wrote to several auto manufacturers including Ford, Honda, General Motors, Mercedes-Benz, Toyota, Tesla, and Volkswagen to ask how they were overseeing their Chinese supply chains. Companies need to be aware that the rule applies to any point in the supply chain, not just where the US has imported from directly. For example, some of the textile shipments that have been stopped by this law have come from other countries but were found to have been through China's Xinjiang region previously.



US companies cannot ignore global rules

The SEC's proposed climate disclosure rules have faced political pushback, but even if they were completely rescinded, US firms will still increasingly find themselves needing to comply with global rules. This will include EU rules on ESG reporting for US firms with large EU operations, as well as emissions reporting for US exports to the EU covered by the CBAM. As more countries adopt ETS and CBAM-style policies, US companies will find they will be at a disadvantage in export markets if they do not decarbonize their operations.

EU companies that fall outside the scope of the EU ETS will still need data from the US companies they trade with to calculate their own Scope 3 emissions. EU companies will also need to conduct due diligence on their value chains concerning environmental and social impacts. This means that European clients and suppliers are likely to be demanding in terms of the data they get from their US trade partners, and US companies will find it easier to build and maintain trading relationships with EU companies (and increasingly companies in other regions) if they work toward decarbonization and show they are doing this with robust data.

The anti-ESG movement

ESG in the US has become a politicized and polarizing topic. The US Securities and Exchange Commission (SEC) proposed its first draft of climate disclosures in March 2022. Shortly after, it was accused of overreach by a group of Republicans from the House of Representatives. House Republicans have since formed an ESG working group to challenge rules promoting ESG investing, including the SEC's proposed disclosures.

In 2023, there have already been 99 bills filed that aim at restricting the rise of ESG business practices, up from 39 during the whole of 2022, according to law firm Morgan Lewis. One key area of contention has been the investment of public pension funds with asset managers that consider ESG factors in their investment strategies. In January 2023, 25 states sued the Department of Labor over a rule that allowed asset managers to consider ESG factors when investing in public pensions. The Department of Labor said ESG factors could be considered as part of the risk-reward calculation and did not say asset managers could put ESG above returns. Opponents of the rule argue consideration of ESG factors goes against asset managers' so-called fiduciary duty to maximize returns.

In August 2022, a coalition of 19 states said BlackRock was putting politics above returns by embracing ESG investing and asking the companies it invested in to set emission reduction targets. Some states, such as Florida, pulled money from BlackRock. Some asset managers and financial institutions have since pulled out of net zero alliances. Vanguard, one of the world's largest asset managers, exited the Net Zero Asset Managers group at the end of 2022. More financial institutions and companies are likely to follow Vanguard's lead in greenhushing (keeping quieter on ESG issues and commitments to avoid potential fallout).

The anti-ESG movement may also be impacting insurers. During the first five months of 2023, many major firms opted to leave the Net Zero Insurance Alliance (NZIA). This included Lloyd's of London, Axa, Allianz, Zurich, and Munich Re. Many of the firms have cited the risk of breaching anti-trust laws as their reason for leaving. In May 2023, Republic policymakers wrote to NZIA members warning them of legal risks associated with their commitments to the NZIA.

The anti-ESG movement, which is largely US-focused, is having an impact on businesses. It creates a new risk for businesses in terms of setting climate targets, with businesses more likely to be singled out and potentially lose business or suffer a public relations fallout. Criticisms from the anti-ESG movement have tended so far to focus on exclusions. This is when companies, especially financial services firms, commit to reducing their offering to companies such as fossil fuel exploration and production companies.

China faces major emissions test and green technology pushback

China is the world's largest emitter of CO₂. It accounted for 33% of global CO₂ emissions in 2021, according to the Emissions Database for Global Atmospheric Research. China has two headline targets for cutting emissions. The first is to have its emissions peak by 2030, which it announced in 2016. The second is to achieve carbon neutrality by 2060, which it proposed in its 'Mid-Century Long-Term Low Greenhouse Gas Emission Development Strategy'.

The 2060 strategy set out several sectoral targets such as:

- By 2030, the total installed wind and solar capacity will exceed 1.2 billion kilowatts (double the 2021 capacity).
- By 2030, the share of non-fossil fuels in primary energy consumption will increase to around 25% (it was 16% at the end of 2020).
- By 2025, 100% of new buildings in cities and towns will implement green building standards.
- By 2030, 40% of all vehicles sold will be powered by clean energy.
- By 2030, China's forest coverage rate will reach 25%.
- By 2030, energy efficiency in key industries will reach advanced international levels.

China readies for ETS expansion

China's emissions trading system launched in 2021 and only covers its power sector. China is planning to expand its ETS to seven additional sectors but has yet to announce a fixed timeline for this. The additional sectors would be petrochemicals, chemicals, building materials, steel, nonferrous metals, paper, and domestic aviation. If completed, the expanded ETS would cover one-seventh of global CO₂ emissions.

The Shanghai Environment and Energy Exchange said in April 2023 that non-ferrous metals and building materials would be added to the national ETS as soon as possible. The increased urgency is likely in response to the EU's CBAM. The CBAM will tax the embedded emissions of imports to the EU following the EU's carbon price. The CBAM will initially cover six sectors from 2026: cement, iron and steel, aluminum, fertilizers, electricity, and hydrogen. Under the CBAM, where an imported good has already been covered by an ETS, the CBAM tax will subtract the amount already paid. Importers will still pay the difference between the EU's carbon price and non-EU countries' carbon price for covered sectors, but the process will be much smoother than if a country had no ETS at all.

Over the past 12 months, the EU's internal carbon price has tended to be above \$80/mtCO₂e, while China's has hovered around \$10/mtCO₂e. This means EU importers of covered Chinese goods will pay a near-full CBAM tax. The initial CBAM sectors only cover 2% of China's exports to the EU, however, this will grow as the EU adds more sectors to the CBAM.

Even though it is adding more sectors, China is unlikely to take steps to make its ETS as stringent as the EU's. For example, the EU caps the overall level of emissions, while China's ETS instead aims at emissions intensity, and does not cap overall emissions. This is because China does not want to overly hinder its economic growth. For that reason, China's carbon price is likely to remain substantially lower than that of the EU.

For Chinese companies, the expansion of China's ETS and the creation of the EU's CBAM create immediate compliance costs and make it more difficult to sell covered goods to the EU. However, it also creates opportunities for companies that can produce low carbon steel or source energy from renewables. This would reduce their embedded emissions, thereby reducing the amount of CBAM tax applied.

The US and EU challenge China's green technology leadership

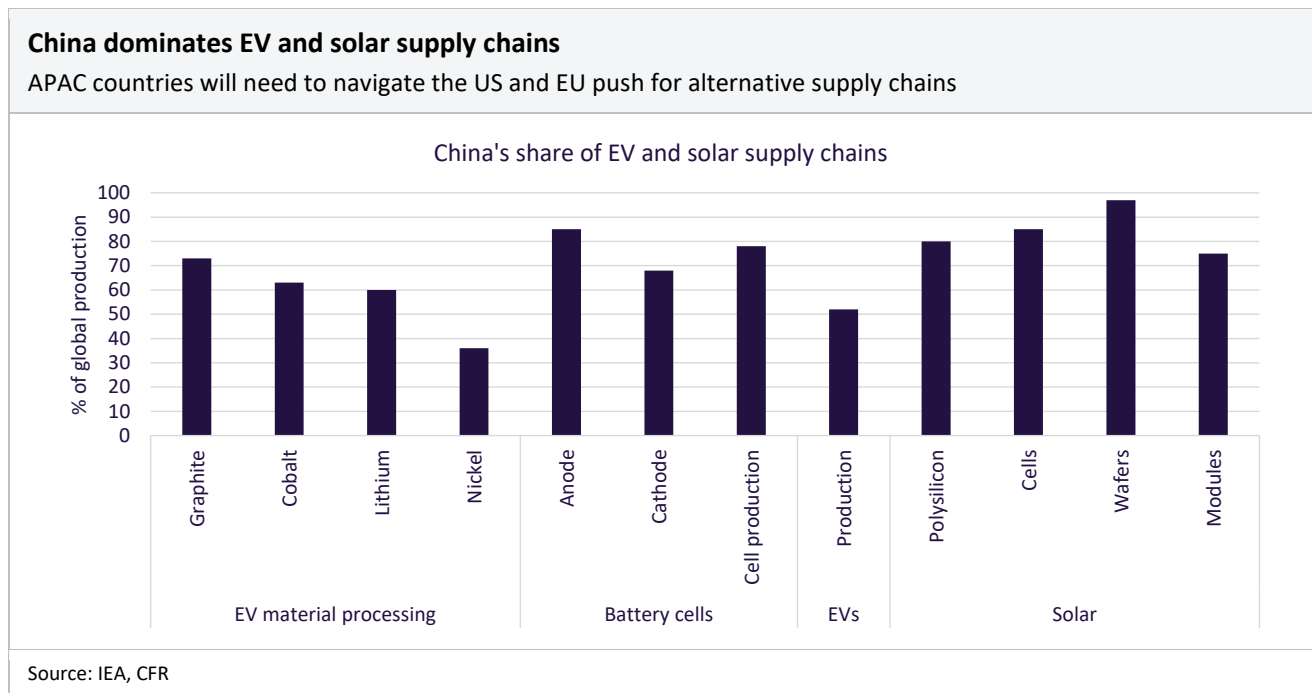
China dominates the global production of green technologies such as batteries and solar panels, as well as key elements of their supply chains. China produces 78% of batteries for electric vehicles and 85% of all solar cells, according to the International Energy Agency (IEA). It also refines 63% of the world's cobalt and 60% of the world's lithium, two critical minerals needed to produce batteries.

China's green technology industry has benefited from the country's export-led economic growth model, in which China-based companies benefited from low labor costs, low barriers to trade, and an undervalued currency. China's state-owned banks have also supported the country's energy sector more broadly through cheap financing. It began to undertake these policies in the 1990s as other countries were beginning to increase their demand for renewable energy.

China's dominance of green technology is now being challenged by the US and EU. The US IRA aims to bring the manufacturing of renewable energy components and batteries to the US. The EU, under its Green Deal Industrial Plan,

aims to manufacture or process 40% of the clean energy technologies it purchases within the EU by 2030. This includes the manufacture of batteries, solar panels, as well as minerals processing like lithium.

China will continue to dominate green technology and industry over the near future and its leadership will further encourage other economies to try and support their own green industries. Chinese companies are likely to establish EU and US operations as these regions incentivize domestic production of green technologies. However, establishing foreign branches will sometimes be difficult for Chinese companies. In January 2023, the US state of Virginia rejected plans by Ford and CATL, China’s largest battery producer, to build a battery factory. Virginia governor Glenn Youngkin said it threatened economic security as well as Virginian’s privacy.



China will have a bigger say in future ESG reporting standards

China is increasingly trying to attract international capital to finance its decarbonization. To this end, it is aiming to adopt mandatory international ESG reporting standards for its listed companies. However, China has raised concerns about the current set of standards developed by the ISSB; it believes that Scope 3 reporting is too costly for developing countries, for example.

In December 2022, the IFRS Foundation, which oversees the ISSB, signed an agreement with the Ministry of Finance of China to establish a Beijing office of the IFRS Foundation. The office will focus on leading and executing the ISSB’s strategy for emerging and developing economies. It will give China greater sway over the development of future sustainability standards and raises China’s profile as a destination for sustainable investment.

ESG Reporting Standards

Many corporates across the globe, especially large, listed ones, have adopted voluntary ESG reporting standards. Among the most popular of these have been the Global Reporting Initiative (GRI), Task Force for Climate-Related Financial Disclosures (TCFD) recommendations, and Sustainability Accounting Standards Board (SASB) standards.

These voluntary reporting standards are being made mandatory or are being replaced by mandatory reporting. This is being done to standardize data for investors, thereby helping capital to flow to companies that perform well on ESG metrics, and other stakeholders. In Asia Pacific, for example, Singapore and Hong Kong are both vying to become the region's green finance hub, with the Hong Kong stock exchange consulting on whether to make International Sustainability Standards Boards (ISSB) standards mandatory for issuers. As more governments commit and subscribe to higher sustainability reporting standards, others will feel compelled to keep up, contributing to network effects.

There is an expectation among investors that ISSB standards will become the main global standard. ISSB standards are built on TCFD standards but cover broader ESG issues, not just climate. That said, the first year of mandatory ISSB reporting, which is likely to be 2025, will only cover climate, to give companies time to adjust. The EU's mandatory standards are the European Sustainability Reporting Standards developed by the European Financial Reporting Advisory Group (EFRAG). These are comprehensive, designed for a range of stakeholders, and cover environmental and social data. The US SEC's climate reporting standards are closely aligned with TCFD and are only climate-focused. The standards each require companies to disclose information on how the management of climate or broader sustainability risks are incorporated into their corporate governance.

For many corporates, the greatest challenge will be the reporting of Scope 3 emissions, which is set to be included across the three main incoming standards. Scope 3 emissions will require companies to collect data from their suppliers and possibly clients.

Mandatory ESG reporting creates challenges for corporates. First, companies need to make sure they know which rules apply to them. Multinationals may be required to create different sets of reports at the parent and subsidiary levels. Secondly, ESG reporting now has to stand up to the scrutiny of auditors and regulators, and this will create challenges for businesses in terms of internal responsibilities and streamlining processes. Software for tracking and reporting emissions across a company's own operations and value chain has become a rapidly growing market, with large software providers like Salesforce and IBM developing their products. Third, companies will now be forced to be more transparent, so greater care will need to be taken on any ESG-related marketing and communications.

ESG reporting standards are being adopted globally			
	2021	2022	2023 and beyond
Europe	EU SFDR level 1 took effect for fund managers.	The UK's largest 1,300 firms (public and private) must produce TCFD reports (first reports due 2024).	<p>EU SFDR level 2 takes effect for fund managers.</p> <p>EU CSRD reporting starts being phased in, with the first reports due 2025 covering 2024.</p> <p>Switzerland's mandatory TCFD-aligned climate reporting starts for banks, insurers, and public firms, with the first reports due in 2025.</p> <p>The EU's deforestation due diligence reporting starts in January 2024.</p> <p>The UK will publish the final Sustainable Disclosure Requirements (SDR) for asset managers in Q3 2023, with rules to take effect 12 months later.</p> <p>UK Transition Plan Taskforce will publish the final draft of rules for disclosing transition plans for listed companies and financial institutions in late-2023.</p>
Asia Pacific	<p>India mandated new ESG disclosures (BSRS) starting in the fiscal year 2022-23 for the top 1,000 listed firms by market cap.</p> <p>Hong Kong mandated TCFD reporting for fund managers.</p>	<p>Japan mandated TCFD reporting for firms listed on the Tokyo exchange's prime market</p> <p>China's banking regulator (BCIRC) issued green finance guidelines for banks and insurers.</p>	<p>Singapore made TCFD reporting mandatory for listed companies in key sectors, with the first reports due in 2025.</p> <p>New Zealand's financial sector and large listed firms will publish the first mandated TCFD reports in 2024.</p>
North America	-	-	<p>The US SEC will publish the final climate disclosure rules around mid-2023.</p> <p>Canada is planning to mandate TCFD reporting for banks and insurers from 2024.</p>
Latin America	Brazil's central bank mandated TCFD reporting for banks starting in 2022.	-	-
ISSB	-	-	<p>The ISSB will unveil its final ESG reporting standards, aimed at setting a global baseline for ESG reporting, in mid-2023.</p> <p>ISSB standards will become effective from January 2024.</p>

Source: GlobalData

The different reporting standards will contain key similarities and differences. Among the key similarities is the requirement that companies report their Scope 3 emissions. The reporting will likely need to be audited in each case as they are now formally part of companies' financial statements. The US SEC's proposed rules are simpler because they

only focus on climate-related factors and do not require scenario analysis, in which a company assesses the financial impact of different degrees of global warming. Companies that operate in different jurisdictions will need to be aware of what standards they need to report in accordance with. The biggest shock to most companies is likely to be the EU's CSRD requirements, which apply to the non-EU parent company of companies with a large subsidiary in the EU.

Mandatory ESG reporting standards compared			
Reporting requirements	ISSB	EFRAG (CSRD/ESRS)	US SEC
E, S, and G factors	E, S, and G.	E, S, and G.	E and G.
Scope 1 and 2 emissions	Required using GHG protocol.	Required based on own guidance.	Required, but GHG protocols are not necessary.
Scope 3 emissions	Required.	Required.	Required if material or if the company has scope 3 targets.
Emissions intensity	Not required.	Required based on net revenue.	Required per unit total revenue and unit production.
Emissions targets	Required.	Required as five-year rolling targets from 2025. 2030 target required. Any other climate targets required, for example, renewable energy use.	Required, including time horizon, any interim targets, and how the company intends to achieve them.
Climate scenario analysis (assessing the financial impact of different degrees of global temperature changes)	Required.	Required.	Not required.
Assurance required	At the discretion of the local regulator.	Required.	Required.
Sector-specific disclosures	Not required but included as guidance.	No, but sector-specific requirements are planned for the future.	No.
Climate risks and opportunities	Required.	Required.	Required.
Climate-linked executive remuneration targets	Required.	Required.	Not required.

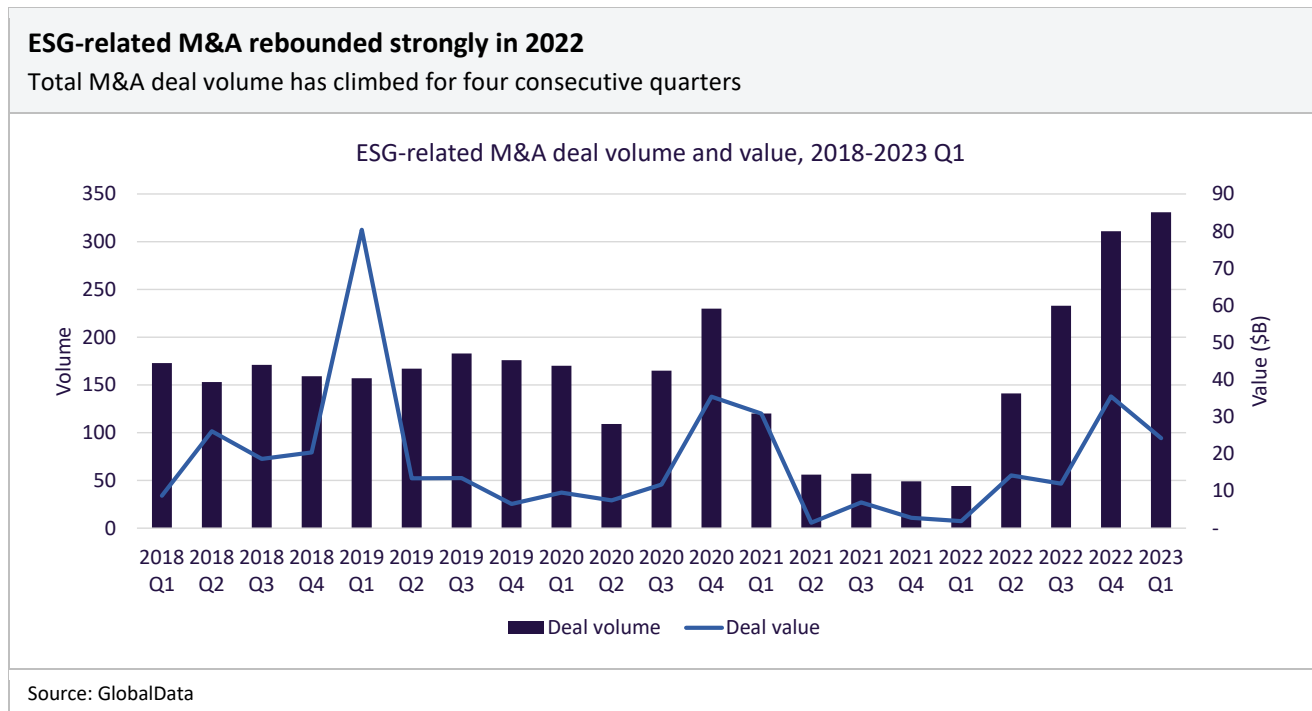
Source: GlobalData

Signals

In this section, we use the 145 million signals generated by our thematic engine to predict how the ESG theme will develop and the likely leaders. These signals are a useful source of competitor intelligence. Our signals include mergers and acquisitions (M&As), venture financing, patent, company filing, hiring, and social media trends.

Mergers and acquisitions

ESG-related M&A activity has climbed in both volume and value over 2022 and has continued to rise in the first quarter of 2023. The deal value was \$85 billion in Q1 2023, the largest quarter for ESG-related M&A deals over the last five years.



Dealflow was bolstered by several deals across a variety of sectors. The key sector for ESG-related deals was power and utilities, as larger energy firms acquired renewable energy firms. In the 12 months to April 2023, there were 250 ESG-related deals in the power and utilities sector. The largest deal in those 12 months was RWE Clean Energy’s acquisition of Con Edison clean energy. RWE Germany’s largest power producer, doubled its US renewables portfolio with the deal. Another significant deal was BP’s acquisition of Archaea Energy in October 2022. Archaea is a producer of renewable natural gas, or biogas, which is generated by landfill sites. BP said the deal would support its aim to reduce its carbon intensity and supports its customers’ decarbonization goals.



The table below shows a list of the largest ESG-related deals that have occurred since April 2022.

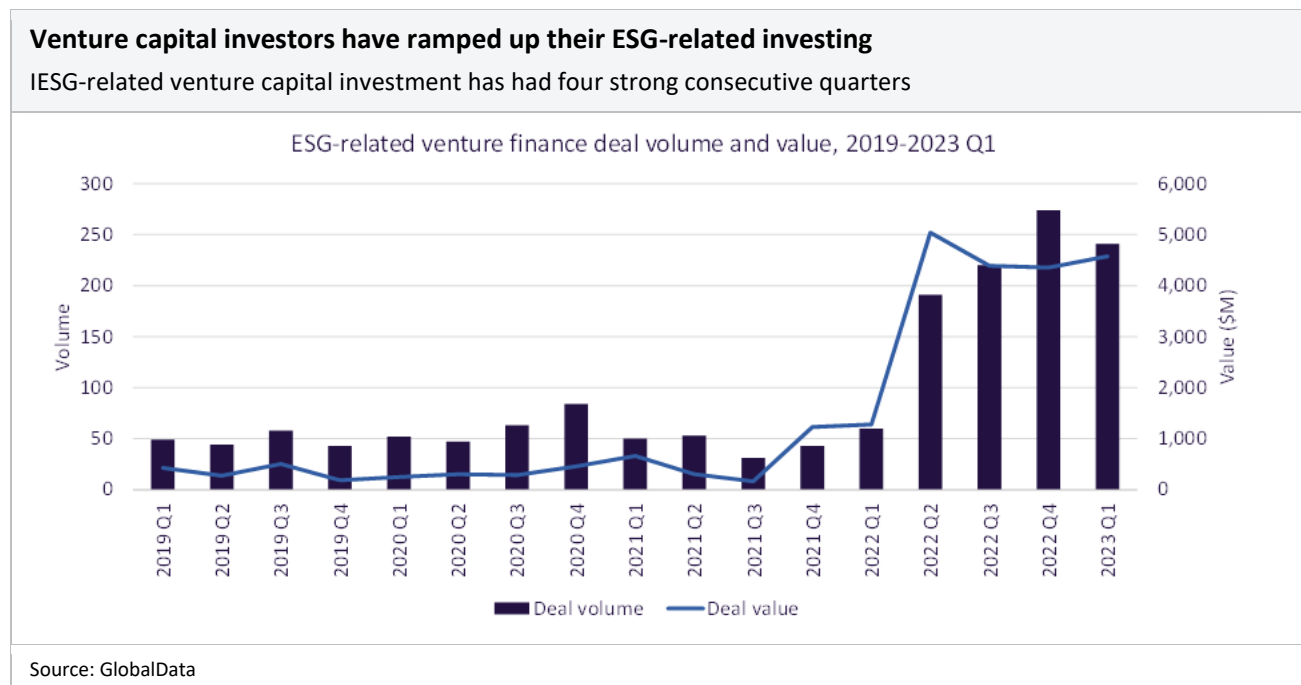
Date announced	Acquirer	Target	Value (\$M)	Target company description
Mar 2023	Albemarle Corp	Liontown Resources	3,423	Battery minerals exploration and mining company
Mar 2023	Infineon Technologies	GaN Systems	830	Producer of gallium nitride power transistors
Mar 2023	Jera	Parkwind	1,666	Offshore wind farm operator
Feb 2023	China Natural Resources	Williams Minerals	1,750	Lithium mine operator
Feb 2023	Energy Harbor Corp	Vistra Energy	3,000	Low carbon power producer and retail energy provider
Feb 2023	Holcim	Duro-Last	1,290	Maker of sustainable roofing systems
Jan 2023	Apollo Future Mobility Group	WM Motor	2,020	Electric vehicle manufacturer
Dec 2022	Superior Plus	Certarus	771	Low carbon provider of natural gas and hydrogen logistics
Dec 2022	Squadron Energy	CWP Renewables	2,717	Renewable energy producer

Date announced	Acquirer	Target	Value (\$M)	Target company description
Dec 2022	CVA	Sistemi Rinnovabili	360	Solar plan operator
Nov 2022	Shell Petroleum	Nature Energy Biogas	2,000	Producer of renewable natural gas
Nov 2022	Sealed Air	Liqui-Box	1,150	Sustainable packaging for consumer and industrial liquids
Oct 2022	HQU US	Great River Hydro	2,000	Hydropower generator
Oct 2022	RWE Renewables Americas	Con Edison Clean Energy Businesses	6,800	Renewable energy producer
Oct 2022	BP	Archaea Energy	4,100	Renewable natural gas producer
Sep 2022	Brookfield Renewable	Scout Clean Energy	1,000	Renewable energy developer and asset management company
Sep 2022	Tetra Tech	RPS Group	732	Environmental consulting company
Sep 2022	Brookfield Renewable	Standard Solar	540	Builder and operator of solar power plants
Sep 2022	Innergex Renewable Energy	Aela Generacion and Aela Energia	686	Renewable energy companies
Aug 2022	RH International	Nefix Energy	1,000	Renewable energy producer
Aug 2022	International Holding	Kalyon Enerji	490	Renewable energy producer
Jul 2022	Infinity Group	Lekela Power	1,500	Renewable energy producer
Jul 2022	MasTec	Infrastructure and Energy Alternatives	1,100	Construction firm focused on renewable energy plants and infrastructure
Apr 2022	Sensata Technologies	Dynapower	580	Provider of energy storage systems

Source: GlobalData

Venture financing

Venture capital investors' interest in ESG-related businesses and technologies has increased dramatically since the start of 2022 with deal value now running above \$4 billion for three consecutive quarters. Between 2019 and 2021, deal value tended to be fairly stable at around \$1 billion per quarter.



Venture capital investors have backed companies set to thrive under ESG 2.0 such as new battery technologies, low-carbon steel, and software for managing emissions and industrial assets. The table below shows a list of the largest ESG-related venture capital investments that have occurred since February 2022.

Date	Lead investor	Company	Value (\$M)	Target company description
Mar 2023	SK Innovation	Amogy	139	Ammonia-focused renewable fuel producer
Feb 2023	CATL Geely Power Battery	Jikrypton Intelligent Technology	750	Electric vehicle producer
Feb 2023	Fifth Wall	Our Next Energy	300	Electric vehicle battery producer
Feb 2023	Sinochem Capital Ventures	Jiangsu Zhongrun Solar Energy Technology Development	443	Solar cell and module manufacturer
Feb 2023	Wuxi Originvest	Anhui Huasun Energy	295.1	Solar panel manufacturer

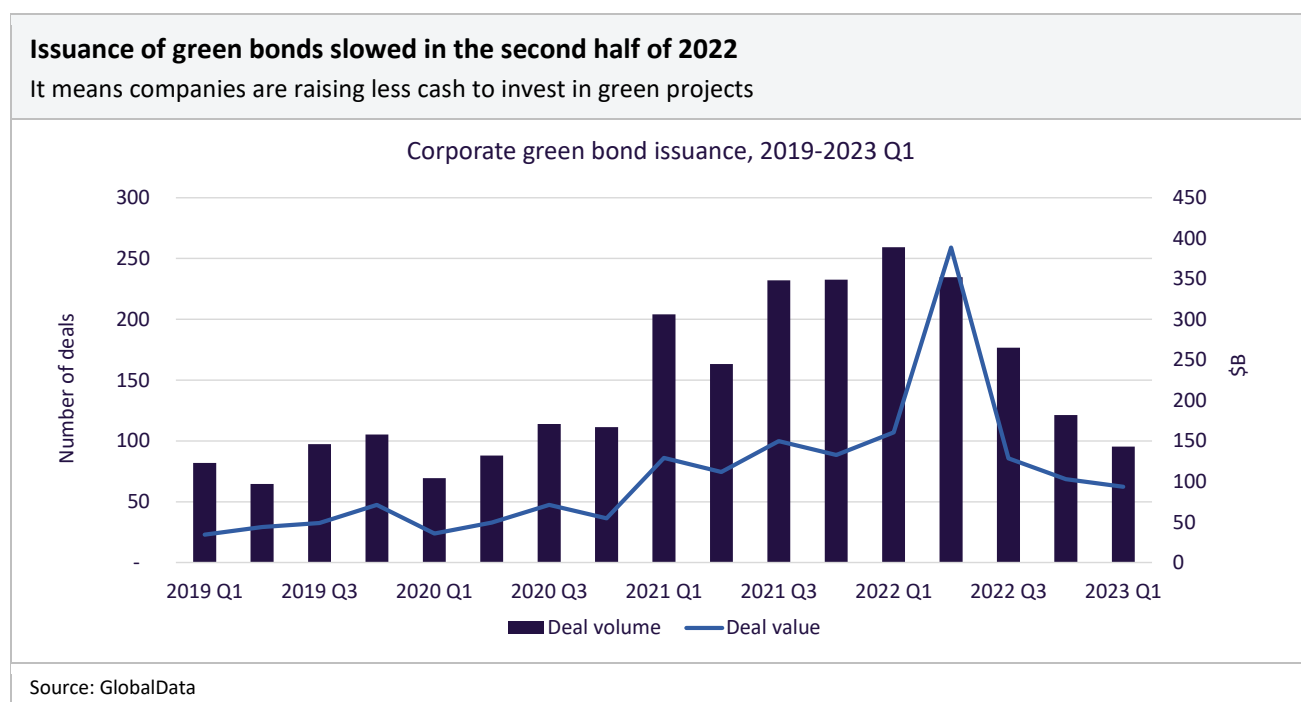
Date	Lead investor	Company	Value (\$M)	Target company description
Dec 2022	Jiaxing Guohe Investment	SPIC Hydrogen	645	Hydrogen energy company
Oct 2022	TPG	Form Energy	450	Energy storage technology developer
Oct 2022	Lower Carbon Capital	Zap Energy	160	Fusion reactor developer
Sept 2022	GIC	H2 Green Steel	189	Decarbonized steel producer
Aug 2022	Broad Vision Funds	Sunwoda Electric Vehicle Battery	1,116	Electric vehicle battery producer
Jul 2022	Momentum Capital Partners	Perpetual Next	334	Turns biological waste into renewable raw materials
Jun 2022	Shangrong Green Energy Venture Capital	SPIC Hydrogen Energy	645	Hydrogen fuel cell developer
Jun 2022	Fifth Wall	Ascend Elements	300	Battery recycling firm
Jun 2022	Sequoia China	Envision Digital	153	AI and IoT software platform for decarbonization
May 2022	Chevron	Carbon Clean Solutions	150	Carbon capture technology provider
May 2022	Goldman Sachs Asset Management	SkySpecs	80	Software for renewable energy asset management
Apr 2022	Coatue	Sweep	73	Software for enterprise carbon management
Mar 2022	Breakthrough Energy Ventures	Source Global	150	Produces hydropanels that create drinking water from water vapor and solar energy
Mar 2022	Goldman Sachs Asset Management	Temperpack Technologies	140	Producer of sustainable thermal insulation for cold chain packaging
Feb 2022	Sequoia	Watershed	70	Enterprise carbon management software

Source: GlobalData

Sustainable bonds

The sustainable bond market includes green bonds, social bonds, sustainability bonds, and sustainability-linked bonds. Green, social, and sustainability bonds are proceeds bonds. This means that the proceeds must be invested in projects classified as green, social, or sustainable. Classifications are not legally enforced and are subject only to market discipline. Sustainability-linked bonds do not have restrictions on the use of proceeds. Instead, they have a built-in mechanism that triggers when a company misses a target, typically an emissions target. The typical mechanism is a small increase in the interest paid by the company.

Green bonds, by far the most popular sustainable bond, have become a way for corporates to reach a broader group of investors and signal their intent around sustainability objectives. Growth in issuance has faltered in 2022 as rising interest rates and inflation put the brakes on capital expenditure plans.



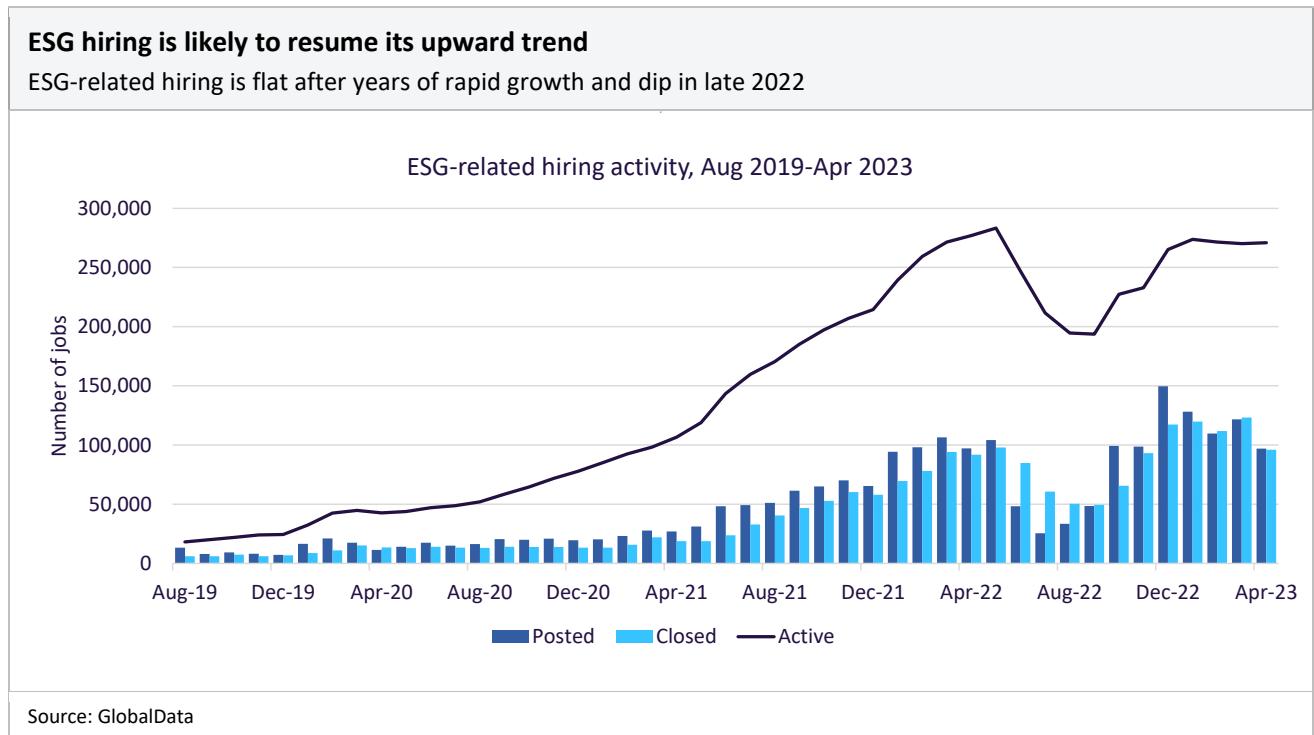
Governments as well as a broad variety of corporates have issued green bonds to raise the capital they need to invest in solving ESG challenges. One of the largest issuers of green bonds is the financial sector, which issues green bonds to raise cash to invest in a portfolio of corporate green projects. There has also been a flurry of issuance from car makers, raising capital to build new battery plants and invest in electric vehicle-making capabilities.

Date announced	Issuer	Value (\$M)	Deal rationale
Mar 2023	Rivian Automotive	1,500	To finance projects related to clean transport, renewable energy, and the circular economy.
Mar 2023	Stellantis	1,332	To finance battery electric vehicle research and development and manufacturing plants.
Feb 2023	Natixis	4,786	To finance or refinance renewable energy owned by Natixis or Groupe BPCE.

Date announced	Issuer	Value (\$M)	Deal rationale
Feb 2023	Comcast	1,000	To finance five investment areas: renewable energy, energy efficiency, green buildings, campuses, communities and cities, clean transportation, and circular economy-adapted products.
Oct 2022	Agricultural Bank of China	2,075	To finance green projects such as rail transit and other infrastructure.
Aug 2022	Ford Motor	1,750	To finance the design, development, and manufacture of its battery electric vehicle portfolio.
Aug 2022	Intel	1,250	To finance projects across green buildings, energy efficiency, the circular economy, emissions reductions, water stewardship, and renewable electricity.
Jul 2022	General Motors	1,250	To finance clean transport solutions and diversity and inclusion initiatives.
Jul 2022	PepsiCo	1,250	Investments will focus on delivering key environmental sustainability initiatives under two pillars of its pep+ agenda: positive agriculture and positive value chain.
May 2022	TenneT	1,315	To finance eligible green power transmission projects in the Netherlands and Germany focused on connecting offshore wind farms to the onshore grid.
Apr 2022	EU	6,604	To finance member states energy transition plans.
Apr 2022	Republic of Italy	6,325	To finance renewable energy, clean transport, the circular economy, and biodiversity projects.
Apr 2022	Equinix	1,200	Project categories include financing green buildings, renewable energy, energy efficiency, sustainable water and wastewater management, waste management, and clean transportation.
Mar 2022	Bank of China	4,739	The proceeds will be invested in green industry projects such as clean production and clean energy.
Mar 2022	EDP	1,364	To finance or refinance wind or solar assets.
Mar 2022	BASF	1,094	To finance electric vehicle battery materials and plants, chemical recycling products and plants.
Source: GlobalData			

Hiring trends

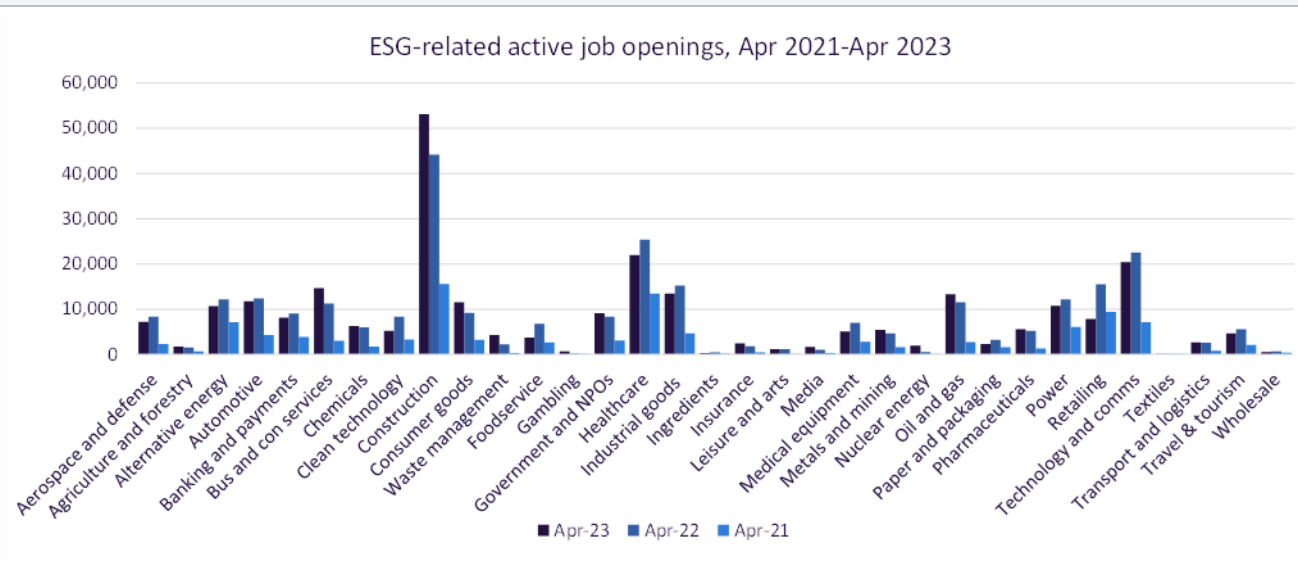
ESG-related hiring grew rapidly up to mid-2022 before declining as companies grappled with soaring inflation and interest rates. It has since recovered and in early 2023 settled at a level of around 270,000 active job openings. Growth in ESG-related hiring is likely to resume in the near future as companies grapple with a broader number of ESG challenges, such as ESG reporting and greater pressure from regulators, investors, and other stakeholders.



ESG hiring has increased across every sector over the past two years, with the largest EGS-related hiring activity occurring in construction, healthcare, industrial goods, and technology and communications. Despite some cooling in overall hiring in 2023, ESG-related hiring is likely to increase as companies build internal resources to manage compliance with new reporting standards, decarbonize their own operations, decarbonize their supply chains, and in some cases, develop low-carbon products and services for their clients.

ESG-related hiring has increased across every sector

The largest increase in ESG-related hiring has been in construction



Source: GlobalData

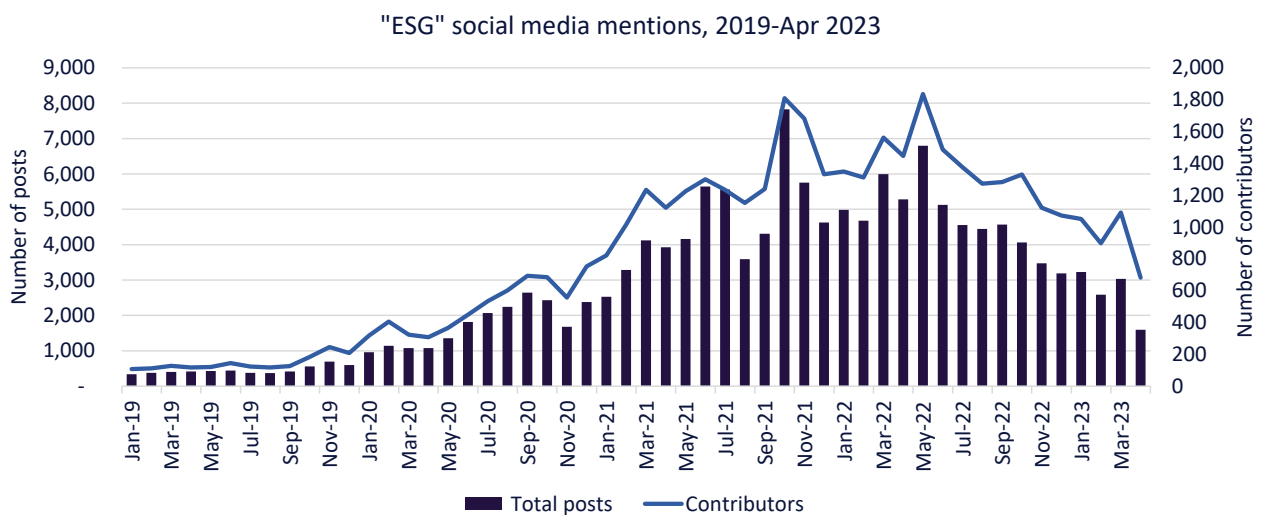
Social media trends

GlobalData’s Social Media Analytics show that social media mentions of “ESG” grew rapidly from 2019 to 2021. There is a spike in October 2021, which is due to COP 26, the climate change conference hosted in Glasgow in which 197 countries, including the world’s largest polluters, signed the Glasgow agreement, reiterating their commitment to limiting global warming to below 2°C.

ESG mentions have declined steadily since 2022. This may be due to several factors including Russia’s invasion of Ukraine and higher inflation, which have tended to draw attention away from ESG and climate goals. A rising number of cases in which companies have been fined for greenwashing may also have played a role. The asset management arms of Goldman Sachs and BNY Mellon received greenwashing fines, while DWS, the asset management arm of Deutsche Bank, had its offices raided in a greenwashing investigation. This phenomenon, in which companies make less noise on ESG due to fears of greenwashing, is known as greenhushing.

Greenhushing may be affecting more companies

ESG-related social media mentions have been declining since mid-2022



Source: GlobalData

Glossary

Term	Definition
Age discrimination	Discrimination among individuals or groups based on their age.
Agricultural runoff	The water that leaves farm fields due to irrigation, rain, or melting snow, and joins water bodies such as lakes or rivers. This runoff contains pesticides, sediments, animal waste, and other pollutants that pollute the water bodies.
Agroforestry	A sustainable land use system in which trees or shrubs are grown around or among crops. This type of land use results in increased biodiversity and reduced soil erosion compared to traditional agriculture.
Air pollutants	Any substance in the air that may have lethal effects on humans and the surrounding ecosystem. Air pollutants include toxic gases such as sulfur dioxide, nitrogen oxides, and particulate matter (PM10, PM2.5, and PM1).
Antitrust law	State and federal laws developed by the US government to protect consumers from unfair business practices such as price-fixing. The laws ensure that businesses are competing fairly with a free market system.
Artificial Intelligence (AI)	Refers to software-based systems that use data inputs to make decisions on their own.
Audit	An official inspection of an organization's accounts, typically performed by an independent external body. The evaluation of the accounts ascertains the extent to which the financial statements and the non-financial disclosures present a true and fair view of the organization.
Biodiversity	The variety of life found on Earth including plants, animals, microorganisms, and other species. It indicates the variation at a genetic, species, and ecosystem scale. The term is an amalgamation of the two words 'biological' and 'diversity'.
Brownfield sites	Disused or derelict land that was previously developed for industrial or commercial purposes. Brownfield sites are used for redevelopment under sustainable development strategies.
Carbon Border Adjustment Mechanism (CBAM)	An EU policy that applies a tax to the emissions created in the production of imported goods from specified sectors.
Carbon Capture and Storage (CCS)	A technology that captures carbon and waste at the source and safely deposits it elsewhere to prevent it from entering the atmosphere. The process can capture up to 90% of the CO ₂ emissions produced from fossil fuels and industrial activities.
Carbon offset	A carbon offset is a reduction or removal of emissions of carbon dioxide or other greenhouse gases made to compensate for emissions made elsewhere. Companies purchase carbon offsets to reduce their net emissions when they cannot adequately cut emissions from their own direct activity
Carbon permits	A certificate allowing the permit holder (a company or a country) to emit a certain amount of carbon. If the holder wishes to emit more carbon than their permit allows, they must buy permits from other companies or countries.

Term	Definition
Child labor	The exploitation of children under the age of 14 through any form of work that restricts their overall development. Child labor deprives children of their right to education and a good quality of life.
Class B shares	A share class that typically has strengthened voting rights in comparison to class A shares. Class B shares typically give the owner more votes and therefore a greater say in company decisions. This type of share system creates a divide between shareholders.
Climate change	Long-term alteration of temperature and weather patterns. Contemporary climate change is caused largely by human activity and the UN has claimed current climate change to be a global climate emergency.
Corporate structure	The organization of different departments entrusted with specific and defined roles within a business or institution. The corporate structure differs across companies and depends on the company's goals and the industry in which it operates.
Corruption and bribery	Corruption refers to unlawful behavior used to gain an advantage through illegitimate means. Bribery is a subcategory and a prevalent form of corruption that involves giving or receiving rewards for the undertaking of favors.
Crop rotation	The practice of growing different crops in the same area in succession. The rotation helps to maintain high nutrient levels in the soil.
Corporate Sustainability Reporting Directive (CSRD)	The Directive applies a greater set of sustainability reporting requirements to a larger number of firms than its predecessor, the Non-Financial Reporting Directive.
Cybersecurity breaches	Unauthorized access to sensitive data, applications, networks, or servers is gained by bypassing the security mechanism.
Data breach	Release of private or confidential information without authorization. Data breaches are a costly expense and can damage the reputation of a business or country.
Data center	A facility used to house computer systems and associated networking equipment to capture, store, analyze, and re-transmit data.
Data privacy	The way in which customers' information is handled and shared by a company based on its importance, individual's consent, or regulatory obligations.
Deforestation	Removal of all the trees from the land before it is used for other purposes such as construction or agriculture.
Diversity and inclusion	The range of human traits including but not limited to age, gender, sexuality, race, ethnicity, and disability. Inclusion refers to the equality in treatment and provision of opportunities to these diverse sets of individuals.
Dual-class shares	Issuing of different classes of shares with different voting rights, typically in the form of class A and class B shares
EFRAG	The European Financial Reporting Advisory Group represents various EU accounting standard-setters

Term	Definition
Electric vehicles	Vehicles running on an electric motor rather than on a fuel-based engine. These vehicles help to mitigate air pollution.
Employee engagement	The extent to which employees feel committed to an organization or its goals.
Endangered species	Plant and animal species at risk of extinction in the near future.
Environmental, social, and governance (ESG)	The three key factors to consider when measuring the sustainability of a country or company.
European Sustainability Reporting Standards (ESRS)	Draft standards that set out what EU companies will need to report under the corporate sustainability reporting directive
Ethics	Moral principles or practices that businesses follow.
Emissions Trading System (ETS)	Requires companies to purchase allowances for their emissions. Allowances are often traded in a secondary market.
Federal Trade Commission	An independent agency of the US government which aims to promote consumer protection and enforce civil antitrust law by eliminating and preventing anticompetitive business practices.
Fishing quotas	The maximum allowance of fish that are allowed to be caught by a fishery or an individual fisher. These quotas help to maintain fish populations by managing the amount of fish commercial fishermen take out of the waters.
Flora and fauna	Flora describes the plant life occurring in an environment and fauna refers to animal life. These are important for maintaining ecological balance and aesthetic value.
Forced labor	Individuals being pressured to work through means such as violence, intimidation, or any other illegitimate means.
Financial Stability Board (FSB)	A group of global financial regulators.
Gender discrimination	Denial of opportunities, privileges, or any other rights to a person based on gender.
Gender pay gap	The average difference between the remuneration for men and women who are working.
General Data Protection Regulation (GDPR)	A regulation that came into force across the EU in May 2018, giving consumers certain rights and protections over the data that organizations hold about them.
GHG Protocol	A guide for companies that defines and helps to calculate emissions.
Global warming	The rise in the average temperature of the earth. Global warming has occurred largely due to the increased emission of greenhouse gases.

Term	Definition
GlobalData ESG action feedback loop	A market-based mechanism for promoting and sustaining corporate action on ESG.
Green bonds	Bonds issued to raise money for environmentally beneficial projects such as those related to clean water provision, renewable energy, energy efficiency, and habitat restoration.
Greenhouse gases (GHGs)	Gases that trap and hold heat in the atmosphere, contributing to the rise in Earth's average temperature. The main GHGs are carbon dioxide (CO ₂), methane (CH ₄), nitrous oxide (N ₂ O), and fluorinated gases.
Greenwashing	The process of conveying a false impression or providing misleading information about how a company's products are more environmentally sound.
Gross domestic product (GDP)	The value of all goods produced and services delivered in a country in one year.
Habitat	The place where a plant or animal naturally lives.
Human rights	Basic rights and freedoms that belong to every person, from birth until death. Human rights include the right to life and liberty, freedom of opinion and expression, the right to work, and the right to education.
International Accounting Standards Board (IASB)	The standard-setting body of the IFRS Foundation.
International Financial Reporting Standards (IFRS) Foundation	Overseas global accounting standard-setting
Indigenous people	People who are native to a given region and have retained the cultural and social characteristics of their ancestors, which are significantly different from those of the dominant societies surrounding them.
Inflation Reduction Act	Signed into law in August 2022, the Inflation Reduction Act aimed to reduce drug prices, support US manufacturing of low carbon technology, and support US clean energy.
International Labor Organization (ILO)	A UN agency whose mandate is to improve social justice by setting international labor standards.
Internet of Things (IoT)	An umbrella term used to describe the use of connected sensors and actuators to control and monitor the environment, the things that move within it, and the people that act within it.
Intergovernmental Panel on Climate Change (IPCC)	An organization of scientists from 196 countries that assesses the science related to climate change.
International Sustainability Standards Board (ISSB)	Develops standards for a global baseline of sustainability disclosures.

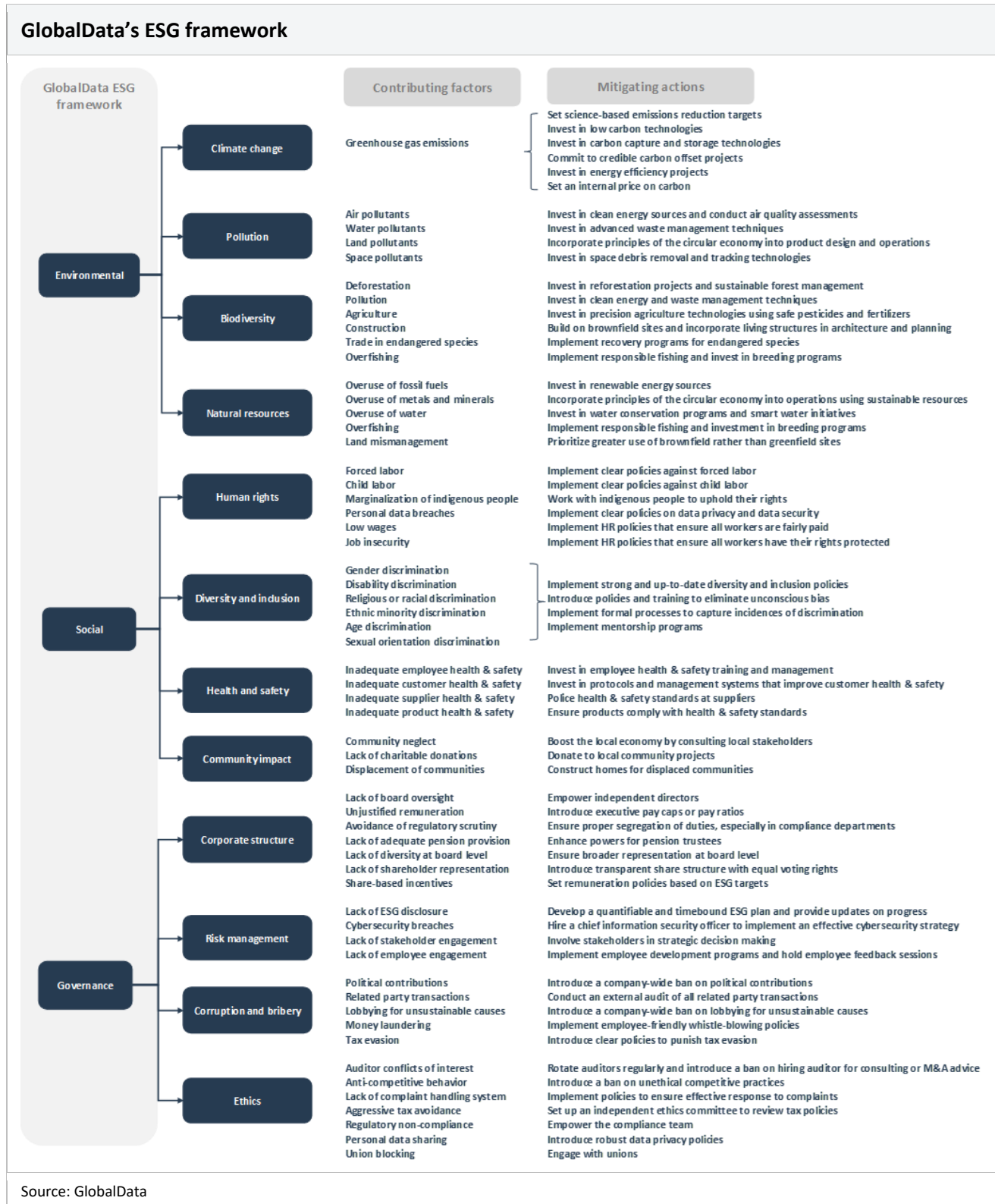
Term	Definition
Job insecurity	The situation in which workers or employees are faced with uncertainty surrounding their terms of employment.
Kickbacks	A form of bribery, kickbacks are illicit payments used to facilitate a transaction or appointment. They are prevalent in the pharmaceutical industry.
Kyoto Protocol	An international agreement signed in 1997 that aimed to reduce carbon dioxide emissions and the presence of greenhouse gasses in the atmosphere.
Land pollutants	Substances such as inorganic pesticides and fertilizers, nuclear wastes, and plastics that degrade land quality.
Low wages	Wages that are insufficient to support a satisfactory standard of living.
Microplastics	Any piece of plastic that is less than 5mm (0.2 inches) in length. Microplastics are a key cause of pollution.
Modern slavery	A broad term covering practices such as forced labor, forced marriages, trafficking, and debt bondage. It refers to a situation where people are intimidated and coerced into doing something they are not willing to do. Modern slavery is a violation of human rights.
Natural resources	Resources occurring naturally without the need for human intervention. They are divided into renewable and non-renewable resources. Renewable natural resources can regenerate over short periods and include forests, oxygen, water sources, and solar energy. Non-renewable resources cannot be replaced over short periods and include fossil fuels and minerals.
Ozone-depleting substances (ODS)	A substance or chemical that causes damage to the ozone layer, including chlorofluorocarbons, halon, and hydrochlorofluorocarbons.
Paris Agreement	An agreement adopted in 2015 to combat climate change. The 187 signatories have pledged to keep the global temperature rise well below 2°C above pre-industrial levels.
Pay gap	The difference between the average pay of two different groups of people e.g. men and women.
Pay ratio	The ratio between the CEO's pay and the median employee's pay.
Political contribution	Monetary contributions made in favor of a political party directly or indirectly in a bid to influence policy development.
Pollution	Contaminants in the environment that cause adverse environmental or health impacts. The various forms of pollution include air, water, land, and space pollution
Proxy voting	Asset managers can vote at shareholder meetings on behalf of their clients using proxy votes.
Racial or religious discrimination	Differential treatment of people due to their race or beliefs about a particular religion.
Related party transaction	Agreement between two parties sharing a common interest or having a pre-existing business relationship. For example, the CEO of one company might transfer money to another company for which they are on the board.

Term	Definition
Renewable building materials	The use of construction materials that can easily be regenerated without depleting natural resources. They include wood, recycled plastic, and bamboo.
Risk management	The identification, assessment, and evaluation of potential threats to an organization that stems from sources like financial uncertainty, management errors, accidents, and natural disasters.
Scope 1 emissions	Emissions a company produces directly, e.g. from a gas boiler or company vehicles.
Scope 2 emissions	Emissions produced indirectly such as through purchased electricity.
Scope 3 emissions	Emissions a company generates through its value chain, e.g. through purchased steel or emissions produced when product is used.
Sexual orientation discrimination	Discrimination against a person or group of individuals based on their sexual behavior or orientation.
Shareholder	An owner of shares in a company that also has certain rights such as the right to vote on company decisions or attend annual shareholder meetings.
Shareholder representation	The practice of considering the views of all the shareholders when making decisions without discriminating against either minority or majority shareholders.
Single-use plastic	Plastics that are used only once before being disposed of or recycled. In the process of breaking down, they can release toxic chemicals which contaminate land and water.
Social bonds	A use-of-proceeds bond that funds investment in social projects.
Space pollutant	Natural and man-made debris that pollutes the space environment. Space pollutants include debris from old satellites or waste vented from shuttles and are difficult and expensive to retrieve.
Stakeholder	Individuals or groups that affect or are affected by a company
Stakeholder engagement	Interacting and communicating with stakeholders to reduce conflict and ensure that their needs are satisfied.
Sustainability	An approach that focuses on ESG factors to ensure the long-term growth of a company or country and to continue generating value for stakeholders. The term is notoriously ambiguous and poorly defined.
Sustainability-linked bonds	Bonds that include some form of penalty if the issuer misses a set sustainability target.
Sustainable bonds	Sustainable bonds include green bonds, social bonds, sustainability bonds, and sustainability-linked bonds.
Sustainable Development Goals (SDGs)	A universal set of 17 goals created by the UN to end poverty, protect the planet, and ensure that all people enjoy peace and prosperity by 2030.
Sustainable investing	Directing investment capital towards addressing sustainability challenges such as climate change and environmental destruction.

Term	Definition
Tax gap	The difference between the total tax owed and the total tax paid.
Taskforce for Climate-related Financial Disclosures (TCFD)	Creates climate reporting standards for companies
UN Framework Convention on Climate Change (UNFCCC)	An international environmental treaty on climate change signed by countries in 1994. The treaty aimed to stabilize GHG concentrations at a level that would prevent dangerous anthropogenic interference with the climate system.
Union blocking	Tactics used to dissuade or forcibly prevent employees from joining or organizing labor unions.
Unjustified remuneration	Unfair compensations paid to employers or employees. For example, exorbitant and unjustified pay of top executives contributes to the increasing inequality between high and low earners
US SEC	The US Securities and Exchange Commission regulates US capital markets.
Water pollutants	Pollutants such as plastics, industrial wastes, and agricultural wastes that contaminate water.
Wetlands	An ecosystem that is permanently or seasonally flooded with water. These go by the names of swamps, marshes, and bogs, and play an important role in protecting shores from wave action, absorbing pollutants, and improving water quality.
Source: GlobalData	

Appendix I: GlobalData's ESG Framework

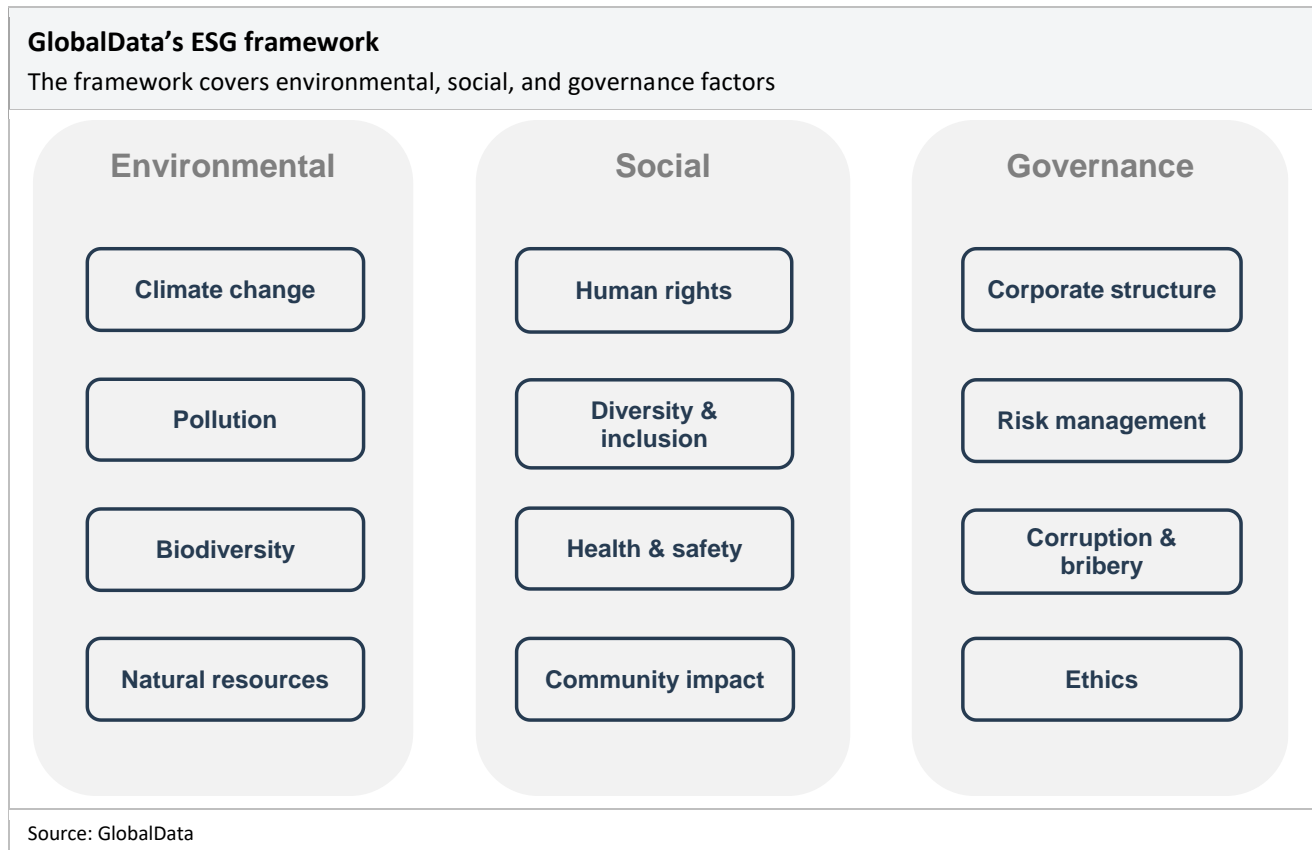
GlobalData's ESG framework, shown below, is a management tool to help CEOs identify all potential sustainability risks and implement mitigating actions that can improve their company's ESG performance.



Source: GlobalData

Breaking down GlobalData’s ESG framework

Adopting a holistic approach that encompasses all environmental, social, and governance issues can help company leaders to ensure all aspects of sustainability are covered in their ESG strategy. In 2022, the pressure will mount on companies to be more transparent about their ESG credentials. We designed the GlobalData ESG framework to help companies build trust with society and set them on a path toward a sustainable future.



Environmental

Environmental performance measures the energy a company consumes, the waste it generates, the natural resources it uses, and the consequences for our habitat. Climate change is increasing the frequency of extreme climatic events, and these climatic changes will have direct, negative consequences for all businesses. One certainty is that climate change will bring about many uncertainties, increasing the risk for companies and delaying investments.

Social

Social performance assesses a company’s engagement with its workers, customers, suppliers, and the local community. It covers human rights, diversity and inclusion, health and safety, and community impact. Social injustices created by big business can generate negative publicity, ensure that companies fail to capture the benefits of a diverse workforce, and lead to issues around regulatory compliance.

Governance

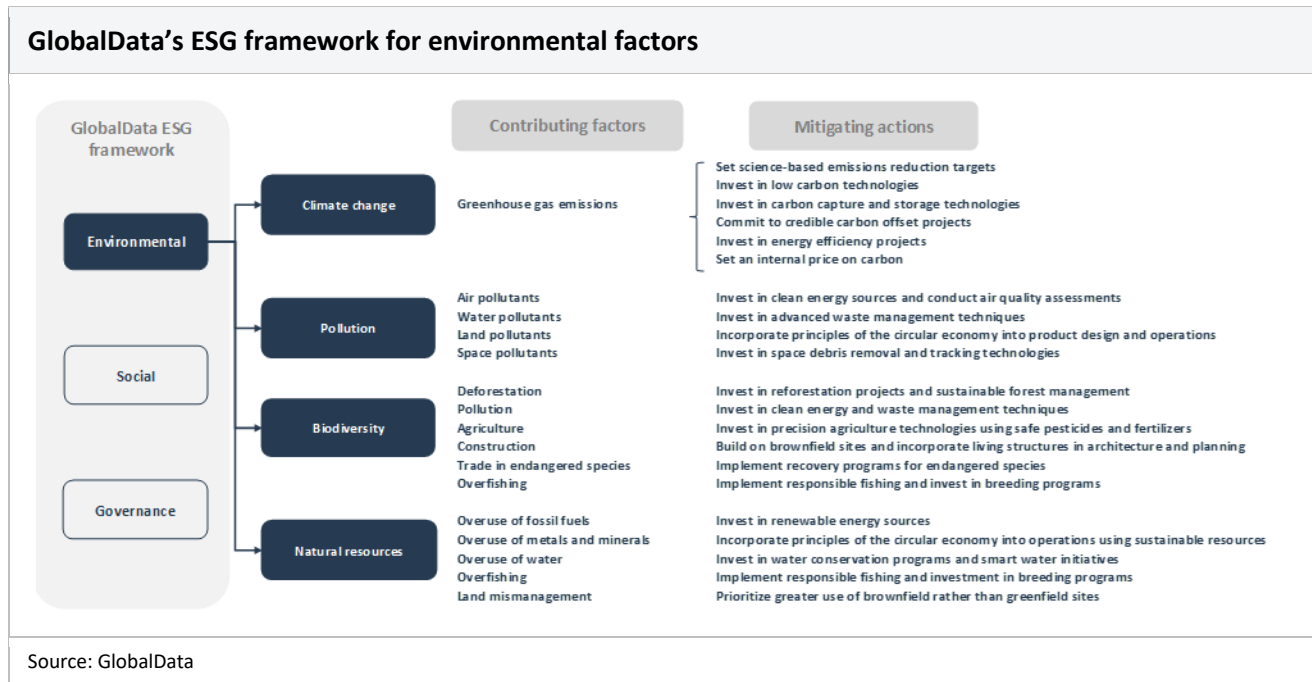
Governance assesses how a company’s internal controls are used to inform business decisions, comply with the law, and meet moral obligations to external stakeholders. Repeated failures in corporate governance—from aggressive tax avoidance to corruption, excessive executive remuneration, and relentless lobbying—has meant that society is losing trust in big business.

Over the following pages, we look in detail at each of the 12 elements depicted in our ESG framework.

Environmental factors

Environmental performance measures how corporate activity contributes to climate change, pollution, biodiversity, and the depletion of the world’s natural resources.

Below, we look at these four contributing factors and identify actions companies can take to mitigate their environmental impact.



Climate change

Climate scientists overwhelmingly agree that the global economy must reach net-zero greenhouse gas (GHG) emissions by 2050 to ward off the catastrophic effects of climate change. Despite this scientific consensus and broad agreement that climate change will disrupt every sector of the global economy, governmental action has not been sufficient to establish a path to net zero.

The same experts who accurately predicted such consequences decades ago say today’s disruptions will not only continue but will accelerate for decades to come, even if we could halt further GHG emissions immediately. This is because of the amount of GHGs already in the atmosphere. CO₂ persists in the atmosphere for 300 to 1,000 years, while methane, with more than 80 times the warming power of CO₂, persists for about 12 years. In other words, environmental issues such as pollution, biodiversity, and natural resources, while important, pale in relation to climate change.

The World Bank estimates that 140 million people will be affected by extreme droughts, floods, and storms by 2050. In addition, research has found that climate change has boosted heat-related deaths in warm seasons by an average of 37%. By 2050, the rise in sea levels could affect much of the US east coast, while islands such as the Bahamas and low-lying cities such as Jakarta and Mumbai could be catastrophically submerged.

In terms of business impact, a report titled *The Truth Behind the Climate Pledges*, authored by climate scientists at the Universal Ecological Fund, paints a bleak picture. It estimates that failure to reduce emissions will cause economic losses of \$2 billion per day by 2030 from weather events exacerbated by human-induced climate change. Analysis by the giant reinsurance company Swiss Re in April 2021 found that global temperature rise, if not addressed, will reduce global economic output by between 11% and 14% by 2050, potentially cutting global economic output by \$23 trillion each year.

To avoid such consequences, scientists overwhelmingly agree that there is just one meaningful course of action: halting the increase in GHGs, primarily from the burning of fossil fuels but also from gases such as methane.

Contributing factor	Description	Impact on the environment	Mitigating actions
Greenhouse gas emissions	Gases that trap heat in the Earth’s atmosphere. The main GHGs are carbon dioxide (CO ₂), methane (CH ₄), nitrous oxide (N ₂ O), and fluorinated gases.	GHGs from human sources strengthen the greenhouse effect, the largest contributor to climate change. According to the US Environmental Protection Agency (EPA), from 1990 to 2019, the total warming effect from greenhouse gases added by humans to the Earth’s atmosphere increased by 45%. 2011 to 2020 was the warmest decade in recorded history, with the global average temperature reaching 1.1°C above pre-industrial levels in 2019.	Set a science-based carbon reduction target through a widely recognized scheme (e.g., the Science-Based Targets initiative (SBTi)). Investing in low-carbon technologies, switching to renewable energy sources, and undertaking energy efficiency projects will also help companies reduce their emissions. Many companies are opting to set an internal carbon price, which helps them assess climate-related risks and make investment decisions. For unavoidable emissions, companies are committing to credible carbon offset schemes, purchasing carbon credits, or investing in carbon capture and storage (CCS) solutions.

Source: GlobalData

Pollution

Most pollution is caused by industrial and domestic waste products. Pollution occurs in four primary forms: air pollutants, water pollutants, land pollutants, and space pollutants. All forms of pollution can adversely affect human health and cause environmental damage. For instance, smog—sometimes known as ground-level ozone—can irritate the eyes and throat and damage the lungs. Mercury, which enters the environment through burning fossil fuels, attacks the central nervous system. The table below summarizes the key pollutants in each category, how they impact the environment, and the actions companies can take to mitigate their impact.

Contributing factor	Description	Impact on the environment	Mitigating actions
Air pollutants	Toxic gases produced primarily from burning fossil fuels. The main gases are sulfur dioxide, nitrogen oxides, carbon monoxide, lead and heavy metals, benzene, and particulate matters PM ₁₀ , PM _{2.5} , and PM ₁ .	Air pollution is ranked as one of the top 10 health risks, leading to approximately seven million deaths worldwide per year. The World Bank estimates that the economic cost of air pollution is \$5.1 trillion per year globally. According to the World Health Organization (WHO), almost all of the global population (99%) breathe air containing high levels of pollutants that exceeds WHO guideline limits, with low- and middle-income countries suffering from the highest exposures.	Invest in clean energy sources that do not require the burning of fossil fuels. Conduct air quality assessments to identify the largest sources of air pollutants throughout the value chain and identify the appropriate areas to address. For instance, companies in the logistics sector can reduce tailpipe emissions by switching to electric vehicle (EV) fleets.
Water pollutants	Infectious agents and chemicals that affect the health of humans and wildlife. The main pollutants are bacteria and viruses from sewage, pesticides, fertilizers, detergents, oils, plastics, industrial effluents, and radioactive materials.	Water pollution can cause serious and widespread health problems. Plastic contamination has reached dangerous levels: one in three fish caught for human consumption now contains some form of plastic.	Invest in advanced waste management systems to ensure that a company does not degrade the quality of the water it uses and that it uses the least amount of water possible.
Land pollutants	Land pollutants result from unsustainable agricultural practices (such as the overuse of pesticides and fertilizer), inefficient irrigation, and improper solid waste management (e.g., hazardous chemicals, nuclear waste, and plastics).	Every minute, around one million plastic bottles are bought worldwide. Land pollution can degrade agricultural soil quality, impacting our food supply and our ability to build stable infrastructures. It can also reduce the quality of life significantly.	Incorporate the principles of the circular economy into product design and operations. The circular economy is a model of production and consumption that involves sharing, leasing, reusing, repairing, refurbishing, and recycling existing materials and products as long as possible.
Space pollutants	Space debris resulting from manufactured satellites orbiting the Earth, especially those in low earth orbit.	Critical communications or military satellites could be damaged by fast-moving debris, potentially causing national security concerns.	Invest in space debris removal and tracking technologies.

Source: GlobalData

Biodiversity

In the last few decades, rapid urbanization and industrialization have led to a significant decline in our planet's biodiversity. According to the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), biodiversity loss is one of the top two dangers facing the world. Since 1700, 80% of the world's forests, 85% of its wetlands, and almost half of its coral reefs have been destroyed. By 2070, according to a 2019 study by Yale ecologists published in *Nature Climate Change*, human activity will put 1,700 animal species at greater risk of extinction.

Biodiversity is important for the survival of all species, including our own. Mismanaged, it can exacerbate global warming, pollute our water supplies, and restrict our food supplies. According to a 2019 Global Assessment Report by IPBES, one million plant and animal species face extinction.

The table below summarizes the contributing factors to biodiversity loss and the actions companies can take to mitigate their impact.

Contributing factor	Description	Impact on the environment	Mitigating actions
Deforestation	The clearance of trees and vegetation on a large scale to make land available for alternative uses such as farming, construction, or ranching.	By removing the world's supply of trees (which absorb carbon dioxide) deforestation exacerbates global warming. Deforestation can also cause desertification, soil erosion, flooding, and habitat loss for many species. According to the Food and Agriculture Organization of the UN, between 2015 and 2020, the rate of deforestation was estimated at 10 million hectares per year, down from 16 million hectares per year in the 1990s.	Incorporate the principles of sustainable forest management into operations and undertake reforestation projects.
Pollution	The contamination of air, land, water, and (less commonly discussed) space. Caused by plastic packaging, industrial and domestic waste products, and the burning of fossil fuels.	Pollution causes severe damage to the Earth's ecosystems and poses a serious threat to human health. Plastic pollution, which has increased tenfold since 1980, is particularly harmful to aquatic ecosystems, and air pollution decreases human health and places a strain on public health services.	Switch to clean energy alternatives (e.g., wind, solar, or geothermal) and reduce the amount of waste sent to landfills by incorporating the principles of the circular economy.
Agriculture	The process of cultivating soil, growing crops, and raising livestock to produce food supplies, fibers, and fuels. In developing economies, agriculture is a primary source of employment.	Over the last 50 years, the world's population has almost doubled to 7.9 billion. Intensive farming techniques—which use fertilizers, pesticides, and genetically modified seeds on an industrial scale—have allowed us to feed this growing population but come with unwelcome side effects, like soil degradation and biodiversity loss.	Invest in precision agriculture technologies that use safe pesticides and fertilizers.

Contributing factor	Description	Impact on the environment	Mitigating actions
Construction	The process of building on natural habitats.	Construction causes biodiversity loss by damaging natural habitats and corridors and polluting water flows.	Build on brownfield sites and incorporate living structures in architecture and planning.
Trade in endangered species	The illegal trade in animal and plant species, forcing their populations into critical decline.	Many endangered species of wild fauna and flora are protected by international treaties. Nonetheless, illegal poaching and trading threaten many animal and plant species with extinction.	Implement recovery programs for endangered animals. In 1975, the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) introduced internationally agreed rules that regulate the import, export, and transshipment of protected flora and fauna.
Overfishing	Depletion of the stock of fish in the sea by excessive fishing.	Overfishing damages marine biodiversity and disrupts food chains for both marine life and human life.	Implement responsible fishing and invest in breeding programs.

Source: GlobalData

Natural resources

The world's natural resources—from fossil fuels to metals, minerals, land, water, and fish—are limited in supply. The world's 7.9 billion humans are depleting our natural resources at an alarming rate. The long-term sustainability of our planet depends on the careful management of natural resources.

According to a UN report, *Global Resource Outlook 2019*, there has been a fivefold increase in the mining of non-metallic minerals and a 45% increase in fossil fuel use since 1970.

The table below highlights the natural resources most at risk of depletion and the actions that companies can take to mitigate their impact.

Contributing factor	Description	Impact on the environment	Mitigating actions
Overuse of fossil fuels	Depletion of the world's supply of coal, oil, and natural gas, typically used for fueling homes, offices, factories, and transportation.	Despite renewable energy capacity increasing, fossil fuels satisfy 80% of the world's energy demands but generate 70% of GHG emissions.	Shift to renewable energy sources—such as wind, solar, and geothermal power—to reduce dependence on fossil fuels.
Overuse of metals and minerals	Depletion of the world's supply of raw materials, many of which are essential for the technology-enabled world in which we live.	The process of extracting metal ores and minerals from deposits in the Earth can contaminate surface water, groundwater, and soil, inducing a loss of habitat for wildlife and local communities.	Incorporate principles of the circular economy into operations using sustainable resources.

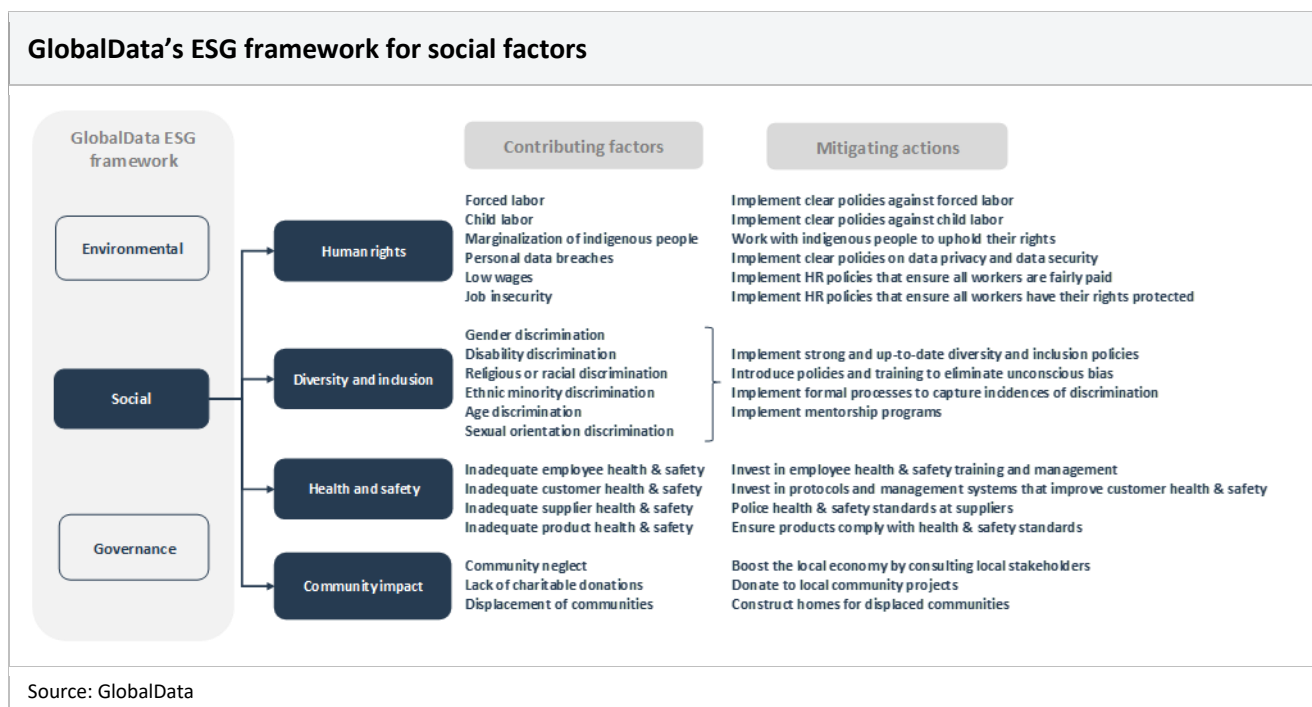
Contributing factor	Description	Impact on the environment	Mitigating actions
Overuse of water	Disruption of the world's water supplies by mismanagement of local water ecosystems, including agricultural water use.	The loss or restriction of water supplies could pose severe health risks and reduce a country's capacity for agriculture or industry.	Invest in water conservation programs and smart water initiatives. For example, many companies use Internet of Things (IoT)-based management systems to identify areas of excessive water use within their operations.
Overfishing	Depletion of the stock of fish in the sea by excessive fishing.	Overfishing damages marine biodiversity and disrupts food chains for both marine and human life.	Implement responsible fishing and invest in breeding programs.
Land mis-management	Failure to use land sustainably and efficiently.	Land mismanagement could lead to a shortage of arable land in many countries. It could also lead to the loss of biodiversity.	Prioritize the greater use of brownfield rather than greenfield sites.

Source: GlobalData

Social factors

Social performance assesses a company’s engagement with its workers, customers, suppliers, and the local community. The effects of corporate actions on society are only now being fully realized. Companies can have a significant negative impact on society, sometimes without the knowledge of anyone in the business. Across all economic sectors and geographic areas, companies face increasing pressure to adopt more socially sustainable practices. Two major events (COVID-19 and the social justice movement) have come to dominate public discussion. Both events have highlighted the consequences of unsustainable social behaviors and the need to adopt more socially sustainable practices. Controlling the pandemic, and addressing its disproportionate consequences for racial and ethnic minorities, are matters of social sustainability

Below, we discuss the social impact of business in four areas: human rights, diversity and inclusion, health and safety, and community impact.



Below, we will look at each of these four social factors in turn.

Human rights

Every individual is entitled to basic rights and freedoms during their lifetime.

Human rights violations can come in many forms, including forced labor, child labor, displacement of Indigenous people, data breaches, low wages, lack of citizenship rights, and job insecurity. For example, despite the existence of laws protecting human rights, the UN states that 40 million people are involved in modern slavery through forced labor and forced marriages.

The table below summarizes how basic human rights factors impact society, and the actions companies can take to mitigate their impact.

Contributing factor	Description	Impact on society	Mitigating actions
Forced labor	Coercion of individuals to work against their will, whether through intimidation, violence, or human trafficking.	Forced labor can lead to permanent mental and physical illness and, in some circumstances, death.	Enact clear policies against forced labor and pay equal attention to eliminating forced labor from supply chains.
Child labor	Employment of children under the legal minimum age.	Child labor deprives children of the right to an education and a childhood and limits opportunities in later life. It can cause malnutrition, depression, and premature aging,	Enact clear policies against child labor, including creating transparency across supply chains. Companies should consider working with third-party advisory firms to ensure their supply chains are free from child and forced labor.
Marginalization of Indigenous people	Exclusion and disregard of native people that differ in traditions and culture from the wider population.	Indigenous people face displacement, marginalization, and human rights abuses. Severing the bond between native people and their land often leads to the erosion of identity, culture, and livelihood. Encroachment on Indigenous land can lead to the destruction of sacred or culturally significant sites.	Consult with and invest in Indigenous communities and recognize them as key stakeholders. Work with them to uphold their rights.
Personal data breaches	Breach of security leading to the unauthorized access, use, destruction, loss, alteration, or disclosure of personal data.	People have a right to privacy. Personal data breaches are a direct breach of human rights.	Enact clear policies on data privacy and security, including training employees for both office-based and remote work. The EU implemented the General Data Protection Regulation (GDPR) in 2018, protecting European citizens' data privacy rights and punishing non-compliance with fines of up to EUR20 million (\$22.7 million) or 4% of annual global turnover, whichever is greater. The California Consumer Privacy Act came into force on January 1, 2020.
Low wages	Wages that are insufficient to support a satisfactory standard of living.	Employees on low wages can suffer from increased stress, poverty, and poor health.	Implement clear HR policies that ensure all workers are paid fairly.
Job insecurity	Concerns regarding the continuity of employment or the removal of workers' rights.	Job insecurity can cause behavioral and emotional changes that impede workers' performance and welfare.	Implement clear HR policies that ensure all workers have their rights protected and are offered adequate training opportunities.

Source: GlobalData

Diversity and inclusion

Discrimination based on gender, disability, religion, race, age, ethnicity, or sexual orientation continues to be a global problem.

According to the European Institute for Gender Equality, improving gender equality would increase EU GDP per capita by between 6.1% and 9.6% by 2050, equivalent to between EUR2 trillion (\$2.2 trillion) and EUR3.2 trillion (\$3.6 trillion).

The table below summarizes how these diversity and inclusion factors impact society, and the actions companies can take to mitigate their impact.

Contributing factor	Description	Impact on society	Mitigating actions
Gender discrimination	The unjust or prejudicial treatment of different categories of people on the grounds of gender, disability, religion, race, ethnicity, age, or sexual orientation.	Failure to include a diverse range of talent in a company's workforce can result in a corporate sector that is detached from the communities it sells to, recruits from, and operates in. From a business's perspective, diversity and inclusion can increase creativity, innovation, and employee engagement by harnessing a wider talent pool. It can also lead to better decision-making by taking account of a wider set of stakeholders and viewpoints.	Hire and empower diversity officers to ensure they have strong diversity and inclusion policies with consistent, formal processes to resolve incidences of discrimination. Companies can also provide mentorship programs and regular anti-discrimination training to eliminate unconscious bias.
Disability discrimination			
Religious or racial discrimination			
Ethnic minority discrimination			
Sexual orientation discrimination			

Source: GlobalData

Health and safety

Organizations must safeguard employees, customers, and suppliers from physical and mental harm. Every year, more than 374 million people suffer from work-related injuries and accidents, causing a 4% hit to global GDP, according to a 2019 report from the International Labor Organization (ILO), *Safety and Health at the Heart of the Future of Work: Building on 100 Years of Experience*.

The table below summarizes how health and safety factors impact society, and the actions companies can take to mitigate their impact.

Contributing factor	Description	Impact on society	Mitigating actions
Inadequate employee health and safety	The inability to provide safe working conditions that ensure the physical, mental, and social wellbeing of employees	Poor employee safety standards could lead to increased injuries and reduced productivity. According to the National Safety Council in the US, compensation payments relating to fatal and non-fatal workplace injuries across the US surpassed \$171 billion in 2019. Mental illness alone costs the global economy approximately \$1 trillion each year, according to a 2019 study by WHO. Companies can also face reputational damage and legal ramifications if they do not ensure adequate health and safety for employees.	Hire health and safety officers to promote policies that create a safe workplace environment. Invest in adequate health and safety training and management for employees and hire health and safety officers to promote these policies.
Inadequate customer health and safety	The inability to ensure customers have a safe experience while purchasing a product or using a service.	Poor customer safety standards could lead to death or serious injury. In some cases, this could lead to regulatory fines, criminal negligence lawsuits, or civil lawsuits.	Companies with a reactive customer complaints process can mitigate customer health and safety issues before they get out of hand by having a system to record, acknowledge, escalate, and resolve them. Invest in protocols and management systems that ensure customer health and safety.
Inadequate supplier health and safety	The inability to monitor and control health and safety hazards across the supply chain.	Engaging with companies with poor health and safety places employees at risk of injury or death.	Set health and safety requirements for suppliers and ensure that these are being upheld.

Contributing factor	Description	Impact on society	Mitigating actions
Inadequate product health and safety	The inability to ensure that all products are designed and manufactured in a way that puts customer safety at the fore.	Consumers have the right to expect that the products they purchase are safe and fit for purpose. Faulty or poorly designed products can risk financial loss, injury, or even death for the consumer.	Monitor and follow product safety standards and regulations. For example, the UK General Product Safety Regulations (2005) require all products to be safe in their normal usage. If this is not met, legal action can be taken. Pursuing certification will also demonstrate conformity to health, safety, and environmental protection. For example, the CE mark is used within the European Economic Area. Companies must communicate and engage with consumers to ensure they are aware of safety issues.

Source: GlobalData

Community impact

Companies have a social obligation to act responsibly towards the communities in which they operate. The table below summarizes the impact companies can have on their local communities, together with the mitigating actions they can take.

Contributing factor	Description	Impact on society	Mitigating actions
Community neglect	The failure to support or hire individuals from local communities.	Companies that fail to hire from local communities can exacerbate the decline of those communities. This can set in motion a vicious circle of decline, creating deprived areas and causing local resentment.	Boost the local economy by consulting local stakeholders, hiring from within the community, and forging partnerships with local businesses or charities.
Lack of charitable donations	The failure to donate money or time towards community welfare.	A lack of charitable donations may render some communities underdeveloped, leading to food insecurity, unhygienic conditions, and a lack of proper education and healthcare.	Companies are increasingly conscious of the need to bolster their reputation as responsible stakeholders in society and are increasing their philanthropic activity. Common corporate philanthropic programs include matching gifts and volunteer grants. According to Chief Executives for Corporate Purpose (CECP), 68% of companies increased their community investment by at least 2% between 2018 and 2020.

Contributing factor	Description	Impact on society	Mitigating actions
Displacement of communities	The eviction of local communities for commercial gain.	The global economy lost \$20.5 billion in 2020 due to the displacement of communities, according to figures from the Internal Displacement Monitoring Centre.	Avoid or minimize displacement where possible and aim to minimize all adverse impacts, for example, by rehousing displaced communities to restore livelihoods.
Source: GlobalData			

Governance factors

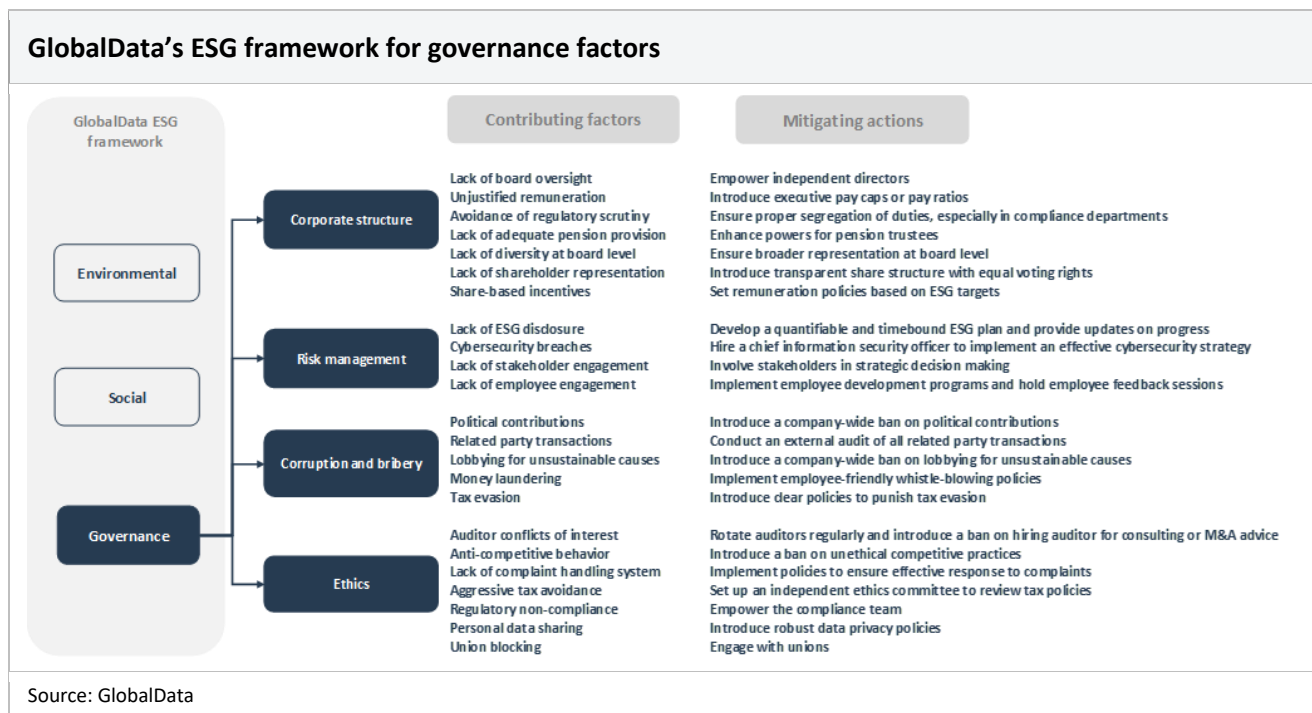
Governance assesses how a company’s internal controls are used to inform business decisions, comply with the law, and meet moral obligations to all stakeholders. Simply put, governance is what determines whether a company will deliver results to stakeholders, however it defines stakeholders, and however it defines results.

The companies that get into the most trouble are often those that forget the number of ways in which they may be held accountable. Sometimes they even ‘out’ themselves, whether inadvertently or because they view disclosure as unavoidable. For example, Airbus triggered the largest corruption enforcement action in history in 2016 when it self-reported irregularities in payments to third-party consultants. The case took four years to resolve and resulted in fines of nearly EUR4 billion (\$4.5 billion).

Payments services company Wirecard went out of business following a fraud scandal in 2020. Ahead of reporting its financial results, it had to acknowledge that EUR1.9 billion (\$2.2 billion) was missing from its balance sheet.

Corporate governance is often the most overlooked pillar of ESG. According to GlobalData’s ESG Strategy Survey 2021, 57% of ESG executives ranked governance as the least important ESG factor. Companies cannot afford to overlook the importance of governance in setting and executing an ESG plan.

Below, we look at how corporate structure, risk management, corruption and bribery, and ethics can all negatively impact an organization’s governance.



Corporate structure

A corporate structure is typically defined by the company's founders. This structure is unlikely to change much until a major event, such as a listing or a new tax structure, necessitates change.

Poorly designed corporate structures can cause many problems. Executives can be paid too much and workers too little. The company's strategy can result in conflict with shareholders or other stakeholders. Regulators may be deceived or obstructed when investigating crimes. Employees may not be able to access the pensions that they have been promised. Minority shareholders may be mistreated and executives may be encouraged to value short-term profits above sustainable, long-term growth—to the detriment of other stakeholders and society as a whole.

Contributing factor	Description	Impact on governance	Mitigating actions
Lack of board oversight	The failure of non-executive directors to adequately challenge the executive decisions made by the board on behalf of the company's shareholders.	Unchallenged CEOs increase the risk of mismanagement. For example, in 2018 and 2019, Boeing's 737 Max airplane was involved in crashes, killing 346 people. The accidents are now known to have been caused by a software fault. However, further investigations indicated that the board was aware of the software issues for some time. Their failure to act stemmed from the leadership of the former CEO.	One way to mitigate this risk is to split the role of chairman and CEO. Another is to empower non-executive directors, giving them the tools to restrain or restructure a poorly performing board.
Unjustified remuneration	The practice of paying company executives unreasonably high salaries and bonuses relative to the median worker.	In 2020, CEOs were paid 351 times as much as a typical worker. On average, a CEO at one of the top 350 firms in the US was paid \$24.2 million. If left unchecked, excessive pay differentials between business leaders and ordinary people may contribute to social unrest.	Since executive pay is commonly tied to short-term profits—which can be manipulated—one way to make CEO pay ratios fairer is to link compensation to ESG goals. Adopting executive pay ratios is another method.
Avoidance of regulatory security	The creation of a corporate structure or corporate culture that makes it difficult for authorities to properly investigate a company's activities.	Opaque corporate structures can obstruct regulatory scrutiny. For instance, Alibaba's holding company is registered in the Cayman Islands, listed in the US and Hong Kong, and has over 90% of its operations in China. This allows management to play regulatory arbitrage. Their assets and operations are in legal jurisdictions where the Securities and Exchange Commission (SEC) has no authority to conduct investigations.	Implement simple and more transparent corporate structures with full segregation of duties to ensure that all areas of the business can be scrutinized both internally and externally.

Contributing factor	Description	Impact on governance	Mitigating actions
Lack of adequate pension provision	The failure to ensure that pension commitments to employees are properly funded.	Many organizations do not adequately fund their pension schemes. The risk is that if a company fails, its employees may not only lose their jobs but also their pensions.	Implement a policy of fully funding employee pension schemes. Giving greater enforcement powers to pension trustees would also help.
Lack of diversity at board level	The failure of a board to ensure it receives regular input from people with diverse backgrounds, whether by income, job function, gender, race, age, sexuality, or religion.	According to the 2021 Missing Pieces Report, of those holding board seats in the top Fortune 500 companies, 74% were men, of which 62% were white. There is a risk that a lack of diversity at the board level can promote groupthink.	Ensure a broader representation of diversity at the board level. Companies that do this are more likely to be in tune with their employee base, a broad range of stakeholders, and society.
Lack of shareholder representation	The failure to take account of the views of the majority of shareholders in the running of a company.	<p>The shareholder structure of some companies can give too much power to certain groups of shareholders.</p> <p>Dual-class share structures, for example, give one class of shares greater voting rights than others. Meta (previously Facebook) and Alphabet have such structures, which means that the shares held by the founders carry higher voting rights than other shares. This makes the founders less accountable to the owners of the business.</p> <p>Some corporate structures are biased toward foreign investors. For example, Chinese companies listed in the US have a variable interest entity (VIE) structure, whereby foreign investors do not own the underlying operating assets of the Chinese company they are investing in. Instead, those operating assets are owned by Chinese nationals who have no legal obligation to recognize these foreign shareholders as rightful owners. Alibaba and Baidu are two Chinese companies with a VIE structure. The risk is that VIE structures could be ruled illegal, making the shares held by foreign investors worthless.</p>	Best practice governance requires clear and transparent shareholder structures where each equity share carries equal voting rights under the law.

Contributing factor	Description	Impact on governance	Mitigating actions
Share-based incentives	A way of paying the employees, executives, and directors of a company with ownership shares in the business.	Share-based incentives typically reward short-term profit-maximizing performance. Over the last three decades, share-based incentives have been on the rise, but poorly set up schemes can cause significant societal damage. One of the causes of the 2007 banking crisis was the short-term profit targets of investment bankers. Many executives were encouraged to take ever-greater risks to generate ever-higher profits. They were awarded share-based incentives based on the profits they generated, while the risks they took were ignored. The result was the biggest financial crisis since the 1930s.	Rewrite share incentive plans to align employee actions to ESG targets.

Source: GlobalData

Risk management

Companies that manage risks and mitigate their impact are more likely to remain profitable long into the future. By contrast, poor risk management can expose a business to numerous threats, from natural disasters to financial uncertainties and legal liabilities, which could significantly jeopardize an organization's future viability.

Myriad risks could be included in this governance section. However, we will focus on four risks to the long-term sustainability of a company: the lack of ESG disclosure, cybersecurity breaches, the lack of stakeholder engagement, and the lack of employee engagement. We may add more risks at a later stage.

The table below summarizes how poor risk management processes in these four areas could impact corporate governance and the mitigating actions companies can take.

Contributing factor	Description	Impact on governance	Mitigating actions
Lack of ESG disclosure	This refers to the disclosure of an organization's environmental, social, and governance data to indicate its ESG performance.	ESG disclosures indicate ESG performance to employees, stakeholders, and wider society. Disclosing ESG performance helps promote transparency, ensures that companies are held accountable, and enables progress toward ESG goals to be benchmarked. It can also assist investors in their investment decision-making.	Develop a quantifiable and timebound ESG plan and provide updates on its progress.

Contributing factor	Description	Impact on governance	Mitigating actions
Cybersecurity breaches	A security incident resulting in unauthorized access to confidential company data.	<p>Cybersecurity breaches pose a threat to the profitability of companies and the safety of their employees and customers, especially if personal data is targeted. Cyberattacks can be driven by a range of motives, including financial gain, extortion, industrial espionage, malice, or activism.</p> <p>The average cost of a cybersecurity breach globally between 2020 and 2021 was estimated to be up to \$4.2 million, increasing by 10% from the previous year, according to IBM and the Ponemon Institute's <i>Cost of a Data Breach 2021</i> report.</p>	<p>Many corporate directors lack adequate expertise in cybersecurity. Putting a chief information security officer (CISO) on a company's board ensures greater oversight of information and data security. A CISO would be responsible for implementing an effective cybersecurity strategy.</p> <p>Companies should also invest in security orchestration, automation, and response (SOAR) software that uses artificial intelligence (AI) and automation. This will significantly reduce response times to data breaches and lower average costs.</p>
Lack of stakeholder engagement	The inability of an organization to engage stakeholders in its business processes.	Stakeholders can include employees and customers, as well as a range of other parties such as non-governmental organizations (NGOs), suppliers, governments, and competitor companies. Sometimes stakeholder interests can conflict with those of a company.	Involve stakeholders in strategic decision-making. By engaging all stakeholders early, business leaders can pre-empt conflicts and better manage risk. A good dialogue with stakeholders is key to risk management as it ensures that any conflict between internal and external stakeholders with opposing interests can be reduced.
Lack of employee engagement	The failure to involve company employees in decision-making processes and respond to their concerns.	<p>Employees are a key factor in the success of a company. Engaging with employees and ensuring their personal and professional development needs are met can help recruit and retain the best talent.</p> <p>Global employee engagement remains low at 20% and is estimated to cost the global economy \$8.1 trillion, according to the 2021 Gallup report <i>State of the Workplace</i>.</p>	Companies can address their employees' personal and professional development by creating long-term career development plans and holding consistent employee feedback sessions. Companies are devising novel techniques to increase engagement, from allowing senior leaders to work within the teams they oversee to paying employees to participate in philanthropic activities. According to a 2018 PwC report, <i>Workforce for the Future</i> , 74% of employees are ready to learn new skills or re-train to remain employable in the future.

Source: GlobalData

Corruption and bribery

Corruption can take the form of extortion, fraud, deception, collusion, and money laundering. Bribery is also a form of corruption. The most common form of bribery is kickbacks, which involve payment of a commission in exchange for services. Another widespread form of bribery is facilitation payments, where money is paid to speed up or facilitate routine actions.

Widespread corruption and bribery can hinder social and economic development by diverting scarce resources away from the most economically productive activity.

The table below summarizes how corruption and bribery can impact corporate governance and the mitigating actions that companies can take.

Contributing factor	Description	Impact on governance	Mitigating actions
Political contributions	Monetary contributions made in favor of a political party, directly or indirectly, in a bid to influence policy development.	Political contributions that seek to influence policymaking in favor of a small set of vested interests do not serve the interests of society as a whole.	Our framework recommends a companywide ban on political contributions.
Related party transactions	Transactions between two parties that held a pre-existing connection before the transaction.	Though not always illegal, related party transactions are unethical. They can create a perceived conflict of interest that disadvantages stakeholders if they are not conducted at arm's length terms. For example, an officer of one company may overpay for services supplied by another company that they, or their immediate family, own.	One of the ways in which companies can be transparent about related party transactions is through an external audit of all related party transactions.
Lobbying for unsustainable causes	Any attempt made by companies to influence a government's decision-making related to sustainability issues. For example, to relax or even block environmental laws.	Businesses lobbying for unsustainable causes can act against the interests of society. For example, according to a 2019 report by InfluenceMap, the five largest oil and gas majors reportedly spend a combined \$200 million a year lobbying to delay, control, or block policies to tackle climate change. Although lobbying of this nature is legal, it can seriously hinder sustainable development.	Implement a company-wide ban on lobbying for unsustainable causes.

Contributing factor	Description	Impact on governance	Mitigating actions
Money laundering	The process of retaining, disguising, and concealing the proceeds of crime.	Incidents of money laundering undermine the integrity of the banking system and strengthen the hand of criminals. According to the International Monetary Fund (IMF), the amount of money laundered globally in one year is between \$800 billion and \$2 trillion.	Implement employee-friendly whistleblowing policies and anti-money laundering policies throughout the company.
Tax evasion	A willful attempt to avoid tax liabilities by under-reporting income, misrepresenting financial records, or not paying the legal amount of tax due.	Tax evasion leads to a tax gap, limiting the capacity of governments to fund their socioeconomic policies. The tax gap totals around \$600 billion annually, which equates to approximately \$7 trillion of lost tax revenue over the coming decade. HM Revenue and Customs said that the tax gap was GBP35 billion (\$47.6 billion) in the 2019–20 financial year, money that could otherwise have been spent improving public services.	Unlike tax avoidance, tax evasion is illegal, so companies caught participating may see individual board directors facing criminal proceedings and possible prison time. Companies who wish to minimize the risk of tax evasion can ensure the proper segregation of duties and introduce clear policies to punish tax evasion. They can also implement employee-friendly whistleblowing policies.

Source: GlobalData

Ethics

In today's social media-dominated world, companies with unethical practices can fast become the target of consumer and shareholder ire. This can lead to a failure to attract top talent and the loss of business.

The table below summarizes how ethical violations can impact corporate governance and the mitigating actions companies can take.

Contributing factor	Description	Impact on corporate governance	Mitigating actions
Auditor conflicts of interest	The conflict of interest arising when a company's auditor provides other, often more lucrative, services such as consulting or M&A advisory services.	Conflicts of interest could encourage auditors to overlook suspicious accounting, faulty accounting, illegal activity, or unethical practices uncovered during an audit to protect its non-audit revenues.	To mitigate the actual risk of auditor conflicts, businesses should rotate auditors every few years. To remove the perception of any conflicts of interest, businesses can ensure that they do not purchase non-audit services—such as management consulting services or M&A advisory services—from their auditor.

Contributing factor	Description	Impact on corporate governance	Mitigating actions
Anti-competitive behavior	Business practices that restrict competition to boost profits without necessarily offering goods and services at a lower cost or higher quality.	Anti-competitive behavior raises customer prices without any corresponding increase in quality while limiting customer choice. Innovation can be stunted in the process. Supernormal profits are a prima facie indicator of anti-competitive behavior. In 2020 the US Department of Justice filed a lawsuit against Google for violating competition law to preserve its monopoly over internet searches. The claim is that the search giant is illegally protecting its dominant position in search and search advertising through deals with companies like Apple.	Fines and prison terms are a deterrent for anti-competitive behavior in many countries. In the UK, a company engaging in anticompetitive practices can be fined up to 10% of its global turnover and sued for damages. Officers of a company involved in cartel activity can be sent to prison for up to five years. Segregation of duties and employee-friendly whistle-blowing policies can further mitigate this risk
Lack of complaint handling system	The absence of any processes for customers and employees to voice concerns about the company and its products.	The lack of adequate complaint-handling systems restricts constructive feedback, reducing a company's ability to respond to its stakeholders' needs. Generally, companies that deal effectively with complaints perform better than those that do not. Research by the Nottingham School of Economics found that 45% of customers withdrew a negative evaluation of a company after receiving an apology.	Implement an effective and independent complaints policy to ensure complaints are handled satisfactorily.
Aggressive tax avoidance	The use of legal loopholes to reduce a corporation's tax bill.	Aggressive tax avoidance allows some corporations to legally escape their obligation to pay their fair share of taxes, reducing the government's ability to fund public services.	Set up an independent ethics committee to review tax policies.
Regulatory non-compliance	Failure to comply with laws and regulations.	Regulatory non-compliance can give a company an unfair competitive advantage and may impose a health and safety risk to employees and customers.	Compliance teams must be empowered to ensure regulatory compliance.
Personal data sharing	The inappropriate sharing of customer, supplier, and employee data with third-party groups, sometimes in exchange for money.	Personal data sharing violates an individual's right to privacy. If this data falls into the wrong hands, it may also expose those individuals to the risk of theft or physical harm.	Companies must ensure they have robust data privacy policies in place. In many countries, data privacy is protected by law, but enforcement by authorities can be weak.

Contributing factor	Description	Impact on corporate governance	Mitigating actions
Union blocking	Limitations imposed on employees by the employer, banning them from joining or organizing labor unions.	Labor unions have played an important role in securing improvements in working conditions and pay. Union blocking denies employees the right to collective bargaining.	While union membership is in decline, it remains a fundamental legal right. Therefore, companies must be willing to engage with unions.
Source: GlobalData			

Appendix II: ESG Disclosure Metrics

The below tables contain some example ESG disclosures required by the major reporting frameworks: the Task Force on Climate-Related Financial Disclosures (TCFD), the Sustainability Accounting Standards Board (SASB), the CDP (formerly the Carbon Disclosure Project), and the Global Reporting Initiative (GRI).

Environmental disclosures

Environmental disclosures	
Climate change	<ul style="list-style-type: none"> ▪ Scope 1 Carbon dioxide emissions (tCO₂) ▪ Scope 2 Carbon dioxide emissions (tCO₂) ▪ Scope 3 Carbon dioxide emissions (tCO₂) ▪ Methane emissions (tCH₄e) ▪ Nitrogen oxides (NO_x) emissions ▪ Fluorinated gasses ▪ Sulfur oxides (SO_x) ▪ Emissions of ozone-depleting substances (ODS) ▪ GHG emissions indexed to sales ▪ GHG emissions indexed to employees ▪ GHG emission target in line with the science behind the Paris Agreement ▪ Internal carbon price ▪ Financed emissions ▪ Energy intensity ▪ Engagement with value chain on climate-related issues ▪ Estimate of the societal cost of carbon used and the source or basis of this estimate

Environmental disclosures	
Pollution	<ul style="list-style-type: none"> ▪ Total renewable energy consumed ▪ Total non-renewable energy consumed ▪ Percentage of total energy which is renewable ▪ Percentage of total energy which is non-renewable ▪ Metric tons of single-use plastic consumed ▪ Resource circularity metrics for the whole company and/or at a product, material, or site level ▪ Waste generation and significant waste-related impacts ▪ Management of significant waste-related impacts ▪ Waste generated ▪ Waste diverted from disposal ▪ Waste directed to disposal ▪ Non-recycled waste ratio ▪ Amount of hazardous waste generated ▪ Amount of E-waste generated ▪ Metric tons of phosphorous fertilizer consumed ▪ Metric tons of nitrogen fertilizer consumed ▪ Metric tons of potassium fertilizer consumed
Biodiversity	<ul style="list-style-type: none"> ▪ Area of land used to produce basic plant, animal, or mineral commodities. ▪ Number and area of sites owned, leased, or managed in or adjacent to protected areas and/or key biodiversity areas (KBA). ▪ Significant impacts of activities, products, and services on biodiversity. ▪ Threatened species within areas impacted by business activities. ▪ Ecosystems commonly impacted by business activities. ▪ Level of threat to ecosystems that are commonly impacted by business activities. ▪ Products and/or services provided by the organization that are likely to have a significant impact on biodiversity. ▪ Area of forestland in endangered species habitat. ▪ Products and/or services provided by an organization that are dependent on biodiversity.

Environmental disclosures	
Natural resources	<ul style="list-style-type: none"> ▪ Megaliters of water withdrawn ▪ Megaliters of water consumed ▪ Percentage of each in regions with high or extremely high baseline water stress, according to WRI Aqueduct water risk atlas tool. ▪ Total quantity of fossil fuels consumed ▪ Total quantity of metals consumed ▪ Total quantity of minerals consumed ▪ Implementation of agriculture or forest management practices on your own land with a climate change mitigation and/or adaption benefit.
Source: GlobalData	

Social disclosures

Social disclosures	
Human rights	<ul style="list-style-type: none"> ▪ Number of discrimination and harassment incidents, status of the incidents and actions taken, and the total amount of monetary losses as a result of legal proceedings. ▪ Total number and percentage of operations that have been subject to human rights reviews or human rights impact assessments, by country. ▪ Number and type of grievances reported with associated impacts related to a salient human rights issue in the reporting period and an explanation on type of impacts. ▪ Number and percentage of operations and suppliers considered to have significant risk for incidents of child labor and forced or compulsory labor. ▪ Number of incidents of violations involving the rights of Indigenous peoples. ▪ Number of data breaches, percentage involving personal information. ▪ Number of substantiated complaints concerning breaches of customer privacy and losses of customer data. ▪ Number of account holders whose information is used for secondary purposes. ▪ An explanation of how the organization facilitates workers' access to non-occupational medical and healthcare services, and the scope of access provided for employees and workers.
Diversity and inclusion	<ul style="list-style-type: none"> ▪ Mean pay gap of basic salary and remuneration of full-time employees based on gender and indicators of diversity (e.g., BAME to non-BAME) at a company level. ▪ Ratio of annual total compensation for the organization's highest-paid individual in each country to the median annual total compensation for all employees. ▪ Percentage of employees per employee category, by age group, gender, and other indicators of diversity (e.g., ethnicity). ▪ Ratios of standard entry-level wage by gender compared to local minimum wage. ▪ Total number and rate of new employee hires during the reporting period, by age group, gender, and other indicators of diversity and region. ▪ Total number and rate of employee turnover during the reporting period, by age group, gender, and other indicators of diversity and region.

Social disclosures	
Health and safety	<ul style="list-style-type: none"> ▪ The number and rate of fatalities as a result of a work-related injury. ▪ High-consequence work-related injuries (excluding fatalities). ▪ Total hours lost to workplace injuries. ▪ Employee training on occupational health and safety. ▪ Workers covered by an occupational health and safety management system. ▪ Description of management systems used to integrate a culture of safety throughout the value chain and project lifecycle. ▪ Total amount of monetary losses as a result of legal proceedings associated with product safety. ▪ Description of efforts to minimize health and safety risks of products sold associated with toxicity/chemical safety, high abuse potential, or delivery. ▪ Description of efforts to assess, monitor, and reduce exposure of workforce to human health hazards. ▪ Number of recalls issued; total units recalled. ▪ Percentage of vehicle models rated by NCAP programs with an overall 5-star safety rating, by region. ▪ List of products listed in the FDA’s MedWatch Safety Alerts for Human Medical Products database.
Community impact	<ul style="list-style-type: none"> ▪ Discussion of engagement processes to manage risks and opportunities associated with community interests. ▪ Description of engagement processes and due diligence practices concerning human rights, Indigenous rights, and the local community. ▪ Backlog cancellations associated with community or ecological impacts. ▪ Operations with local community engagement, impact assessments, and development programs. ▪ Proportion of senior management hired from the local community. ▪ Percentage of employees receiving regular performance and career development reviews. ▪ Average hours of training per person that the organization’s employees have undertaken during the reporting period, by gender and employee category. ▪ Average training and development expenditure per full-time employee. ▪ Total amount donated to charitable causes.

Source: GlobalData

Governance disclosures

Governance disclosures	
Corporate structure	<ul style="list-style-type: none"> ▪ Describe the composition of the highest governance body and its committees by economic, environmental, and social competencies. ▪ List the committees of the highest governance body responsible for decision-making on and overseeing the management of the organization's impacts on the economy, environment, and people. ▪ Describe the role of the highest governance body in developing the organizations' purpose, value or mission statements, strategies, policies, and goals related to sustainable development. ▪ Whether the highest governing body is responsible for reviewing and approving the reported information, including the material topics. ▪ Describe the nomination and selection processes. ▪ Report whether the chair of the highest governance body is also a senior executive in the organization. ▪ Report the ratio of the annual total compensation for the organization's highest-paid individual to the median annual total compensation for all employees. ▪ How performance criteria in the remuneration policies relate to the highest governance bodies and senior executives' objectives for economic, environmental, and social topics. ▪ Share buybacks plus dividend payments, supported by a narrative to describe the company's strategy for returns of capital to shareholders.
Risk management	<ul style="list-style-type: none"> ▪ A list of the topics that are material to key stakeholders and the company, how the topics were identified, and how the stakeholders were engaged. ▪ Company risk factor and opportunity disclosures that clearly identify the principal material risks and opportunities facing the company specifically. ▪ How the highest governance body considers economic, environmental, and social issues when overseeing major capital allocation decisions, e.g., expenditures, acquisitions, and divestments. ▪ Describe the board's oversight of climate-related risks and opportunities. ▪ Whether climate-related issues are considered when the board is guiding strategy, major plans of action, risk management policies, annual budgets, and business plans. ▪ Describe management's role in assessing and managing climate-related risks and opportunities. ▪ Describe risk management processes for identifying and assessing climate-related risks. ▪ Processes for assessing the potential size and scope of identified climate-related risks. ▪ Whether management has climate-related responsibilities, how do they monitor issues, and do they report to the board.

Governance disclosures	
Corruption and bribery	<ul style="list-style-type: none"> ▪ Total percentage of governance body members, employees, and business partners who have received training on the organization’s anti-corruption policies and procedures. ▪ Total number and nature of incidents of corruption confirmed during the current year but related to previous years. ▪ Total number and nature of incidents of corruption confirmed during the current year, related to this year. ▪ Discussion of initiatives and stakeholder engagement to improve the broader operating environment and culture, to combat corruption. ▪ A description of internal and external mechanisms for seeking advice and reporting concerns about unethical or unlawful behavior and lack of organizational integrity. ▪ Total amount of monetary losses because of legal proceedings associated with fraud, insider trading, antitrust, anti-competitive behavior, market manipulation, and malpractice. ▪ The significant issues that are the focus of the company’s participation in public policy development and lobbying. ▪ Total amounts spend on lobbying in the reporting year and breakdown of lobbying topics. ▪ Describe the mechanisms for individuals to seek advice on implementing the organization's policies and practices for responsible business conduct and raise concerns about it.
Ethics	<ul style="list-style-type: none"> ▪ Description of efforts to minimize conflicts of interest and unethical business practices. ▪ Describe the process for the highest governing body to ensure that conflicts of interest are prevented and mitigated. ▪ Report whether conflicts of interest are disclosed to stakeholders. ▪ Report industry associations, other membership associations, and national or international advocacy organizations in which it participates in a significant role. ▪ Disclose the nature of any related-party transactions and information concerning that transaction. ▪ The percentage of employees under collective bargaining agreements. ▪ A description of how an organization engages with unions. ▪ A description of the complaint handling systems in place. ▪ A description of tax governance, control, and risk management. ▪ Stakeholder engagement and management of concerns related to tax.

Source: GlobalData

Further Reading

GlobalData reports

Publication date	Report title
May 2023	<u>Thematic Intelligence: ESG Sentiment Polls Q1 2023</u>
February 2023	<u>Thematic Intelligence: The Circular Economy</u>
February 2023	<u>Thematic Research: Artificial Intelligence</u>
February 2023	<u>Thematic Intelligence: ESG Sentiment Polls Q4 2022</u>
November 2022	<u>Thematic Intelligence: ESG Sentiment Polls Q3 2022</u>
November 2022	<u>Thematic Intelligence: Cloud Computing</u>
November 2022	<u>Thematic Research: Energy Transition in Oil & Gas</u>
September 2022	<u>Thematic Research: Circular Economy in Foodservice</u>
May 2022	<u>Thematic Research: Batteries</u>
March 2022	<u>Thematic Research: Smart Cities</u>
March 2022	<u>Thematic Research: Sharing Economy</u>
February 2022	<u>Thematic Research: GlobalData's ESG Framework</u>
September 2021	<u>Thematic Research: Augmented Reality</u>
June 2021	<u>Thematic Research: Climate Change</u>
May 2021	<u>Thematic Research: Blockchain</u>
May 2021	<u>Thematic Research: Internet of Things</u>
April 2021	<u>Thematic Research: Circular Economy in Apparel</u>
March 2021	<u>Thematic Research: 5G</u>
February 2021	<u>Thematic Research: Circular Economy in Retail</u>
Source: GlobalData	

Our Thematic Research Methodology

Companies that invest in the right themes become success stories. Those that miss the important themes in their industry end up as failures.

Viewing the world’s data by themes makes it easier to make important decisions

We define a theme as any issue that keeps a CEO awake at night. GlobalData’s thematic research ecosystem is a single, integrated global research platform that provides an easy-to-use framework for tracking all themes across all companies in all sectors. It has a proven track record of identifying the important themes early, enabling companies to make the right investments ahead of the competition, and secure that all-important competitive advantage.

Traditional research does a poor job of picking winners and losers

The difficulty in picking tomorrow’s winners and losers in any industry arises from the sheer number of technology cycles—and other themes—that are in full swing right now. Companies are impacted by multiple themes that frequently conflict with one another. What is needed is an effective methodology that reflects, understands, and reconciles these conflicts.

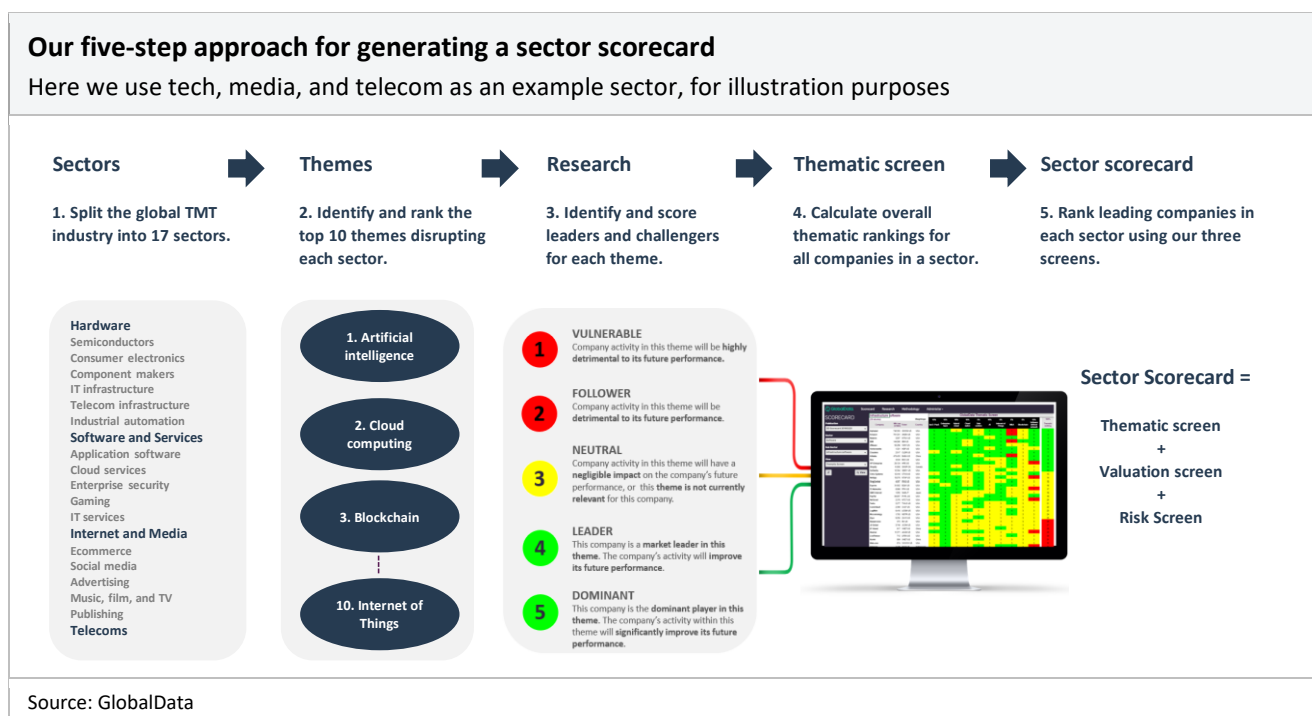
That is why we developed our thematic engine

At GlobalData, we have developed a unique thematic methodology for ranking all major companies in all major sectors based on their relative strength in the big themes that are impacting their industries.

Our thematic engine tags over 145 million data items across five alternative data sets—patents, jobs, deals, filings, and news—to themes. The vast datasets within our thematic engine help our analysts to produce sector scorecards that identify the companies best placed to succeed in a future filled with multiple disruptive threats.

How do we create our sector scorecards?

First, we split each industry into its component sectors because a different set of themes drives each sector. Taking the TMT (technology, media, and telecom) industry as an example, we split this industry into the sectors shown in the graphic below.



Second, we identify and rank the top 10 themes for each sector (these can be technology themes, macroeconomic themes, or industry-specific themes). Third, we publish in-depth research on specific themes, identifying the winners and losers within each theme. The problem is that companies are exposed to multiple investment themes and the relative importance of specific themes can fluctuate. So, our fourth step is to create a thematic screen for each sector to calculate overall thematic leadership rankings after taking account of all themes impacting that sector. Finally, to give a crystal-clear picture, we combine this thematic screen with our valuation and risk screens to generate a sector scorecard used to help assess overall winners and losers.

What is in our sector scorecards?

Our sector scorecards help us determine which companies are best positioned for a future filled with disruptive threats. Each sector scorecard has three screens:

- **The thematic screen** tells us who are the overall leaders in the 10 themes that matter most, based on our thematic engine.
- **The valuation screen** tells us whether publicly listed players appear cheap or expensive relative to their peers, based on consensus forecasts from investment analysts.
- **The risk screen** tells us who the riskiest players in each industry are, based on our assessment of four risk categories: operational risk, financial risk, industry risk, and country risk.

How do we score companies in our thematic screen?

Our thematic screen ranks companies within a sector based on overall leadership in the 10 themes that matter most to their industry, generating a leading indicator of future earnings growth.

Thematic scores predict the future, not the past. Our thematic scores are based on our analysts' assessment of their competitive position in relation to a theme, on a scale of 1 to 5:

1	Vulnerable	The company's activity in this theme will be highly detrimental to its future performance.
2	Follower	The company's activity in this theme will be detrimental to its future performance.
3	Neutral	The company's activity in this theme will have a negligible impact on the company's future performance, or this theme is not currently relevant for this company.
4	Leader	The company is a market leader in this theme. The company's activity in this theme will improve its future performance.
5	Dominant	The company is a dominant player in this theme. The company's activity in this theme will significantly improve its future performance.

How do our research reports fit into our overall thematic research ecosystem?

Our thematic research ecosystem is designed to assess the impact of all major themes on the leading companies in a sector. To do this, we produce three tiers of thematic reports:

- **Single theme:** These reports offer in-depth research into a specific theme (e.g., artificial intelligence). They identify winners and losers based on thematic leadership, market position, and other factors.
- **Multi-theme:** These reports cover all themes impacting a sector and the implications for the key players in that sector.
- **Sector scorecard:** These reports identify those companies most likely to succeed in a world filled with disruptive threats. They incorporate our thematic screen to show how conflicting themes interact with one another, as well as our valuation and risk screens.

About GlobalData

GlobalData is a leading provider of data, analytics, and insights on the world's largest industries. In an increasingly fast-moving, complex, and uncertain world, it has never been harder for organizations and decision makers to predict and navigate the future. This is why GlobalData's mission is to help our clients to decode the future and profit from faster, more informed decisions. As a leading information services company, thousands of clients rely on GlobalData for trusted, timely, and actionable intelligence. Our solutions are designed to provide a daily edge to professionals within corporations, financial institutions, professional services, and government agencies.

Unique Data

We continuously update and enrich 50+ terabytes of unique data to provide an unbiased, authoritative view of the sectors, markets, and companies offering growth opportunities across the world's largest industries.

Expert Analysis

We leverage the collective expertise of over 2,000 in-house industry analysts, data scientists, and journalists, as well as a global community of industry professionals, to provide decision-makers with timely, actionable insight.

Innovative Solutions

We help you work smarter and faster by giving you access to powerful analytics and customizable workflow tools tailored to your role, alongside direct access to our expert community of analysts.

One Platform

We have a single taxonomy across all of our data assets and integrate our capabilities into a single platform – giving you easy access to a complete, dynamic, and comparable view of the world's largest industries.

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